HENDERSON'S HANDBOOK OF PLANTS



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HENDERSON'S

HANDBOOK OF PLANTS.

BY

PETER HENDERSON,

AUTHOR OF

"GARDENING FOR PROFIT," "PRACTICAL FLORICULTURE,"

"GARDENING FOR PLEASURE," ETC., ETC.

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INTRODUCTION.

In offering to florists, gardeners, and amateurs interested in horticulture, the Handbook of Plants, I do so in the belief that it will, to some extent, fill a want that has long been felt by thousands in this country—the want of a concise yet comprehensive dictionary of plants.

As a book of reference, it is believed it will take the place, for all practical purposes, of the expensive and voluminous European works of this kind; and as it has been written with a special view to the wants of the climate of the United States, both in matters of propagation and culture, it will, in these important particulars, I flatter myself, be found much more valuable than any European work of this class.

Instructions for the culture of many important plants, such as the Rose, have been given at length, and these articles, as in all my previous writings on horticultural subjects, are a plain relation of the methods in use in our own extensive business.

The scope of the work embraces the botanical name, derivation, and the Linnæan and natural orders of all the leading genera of ornamental or useful plants up to the present time, together with all important species and varieties, with brief instructions for propagation and culture.

A valuable feature of the book, particularly to amateurs, is the great care that has been given to obtaining all known local or common names; and as the arrangement of the book is alphabetical, any plant wanted can be thus quickly referred to under either its scientific or common name. An Index is also added, where important plants or modes of culture can be referred to at once.

A comprehensive glossary of botanical and technical terms, together with general horticultural terms and practices, is also given, which will be found of great value even to the experienced horticulturist.

I with pleasure acknowledge the able assistance I have received in getting up the work from C. L. Allen, of Garden City, L. I., who for two years has lent his valuable aid in researching and compiling as well as in writing many important parts of the book.

I am also indebted to the following books used as authorities in compiling the Handbook of Plants:

Loudon's Encyclopædia of Plants; Paxton's Botanical Dictionary; Paxton's Magazine of Botany; Johnson's Gardener's Dictionary; McIntosh's Book of the Garden; Rhind's Vegetable Kingdom; Lindley's Treasury of Botany; Orchid Grower's Manual; Miller's Gardener's Dictionary; Gerarde's Herbal (1597); Parkinson's Garden of Pleasant Flowers (1629); Dodoen's Plants (1587); Gray's Manual of Botany; Chapman's Southern Flora; Darlington's American Weeds and Useful Plants; American Agriculturist, of New York; the Gardener's Monthly, of Philadelphia, Pa.; and The Garden, London, England.

PETER HENDERSON.

Jersey City Heights, N. J., March 1*st*, 1881.

HENDERSON'S

HANDBOOK OF PLANTS.

Abaca, a popular name given to one of the *Musas* or *Bananas* of the Philippine Islands.

Abele. The White Poplar, *Populus alba*, of Europe; a tree that has been extensively planted as an ornamental tree, but discarded because of its tendency to sucker and spread beyond control.

Abelia. After *Dr. Abel*, physician to the embassage of Lord Amherst to China. *Linn. Pentandria-Monogynia.* Nat. Ord. *Caprifoliaceæ.*

A small genus of green-house shrubs, found in India, China, Mexico, and Japan. They are of a slender branching habit, bearing opposite leaves and terminal bunches of tubular flowers, rose colored or dark crimson. *A. rupestris*, a native of China, is of dwarf habit, and flowers profusely in autumn or winter. The flowers are in compact clusters, very fragrant. *A. floribunda*, a Mexican species, has dark-colored flowers, produced from the axils of the leaves. This species is inclined to grow straggly. All the species are increased by cuttings. Introduced in 1844.

Abies. Spruce, Fir. The classical Latin name. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Pinaceæ.*

An extensive genus of hardy evergreen trees. Most of the species are ornamental, and extensively planted for hedges around large grounds, or for single specimens on the lawn. *A. excelsa*, the Norway Spruce, is the most commonly planted, and one of the best of our native species. *A. alba* is the White Spruce; *A. Canadensis*, the common Hemlock; *A. balsamea*, the Balsam Fir; and *A. nigra*, the Black or Double Spruce. *A. Douglassi* is a noble species, common west of the Rocky Mountains. It attains a height of two hundred feet, and a diameter of ten feet, and is entitled to a place among the "great trees" of California.

Abobra. Derivation of name unknown. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Cucurbitaceæ.*

A. viridiflora is a very pretty climber, suitable for planting out during summer. Foliage dark green and glossy; flowers insignificant, but the small scarlet fruit makes the plant very effective. Root tuberous; perennial. Keep during winter like the Dahlia.

Abroma. From *a*, privative, and *broma*, food; unfit to be eaten. *Linn. Polyadelphia-Decandria.* Nat. Ord. *Sterculiaceæ.*

Handsome, free flowering species, of easy culture, growing readily in common loam, and propagated by seeds or offsets. The flowers are in terminal or axillary clusters, yellow or purple. The bark of *A. augusta*, a native of the East Indies, furnishes a very strong white fiber, used in the manufacture of cordage that is not liable to be weakened by exposure to wet. This plant is rarely met, except in botanical collections.

Abronia. From *abros*, delicate; referring to the involucrum. *Linn. Pentandria-Monogynia.* Nat. Ord. *Nyctaginaceæ.*

These charming annuals are natives of California. *A. umbellata*, introduced in 1826, is a handsome trailing plant, well adapted for rock-work, suspended baskets, or beds, flowering freely during the autumn months. Flowers in trusses, like the Verbena, of a rosy-lilac color, very fragrant. They succeed well also in the garden border. Seed should be sown as soon as the ground is in order. They may with profit be started in a hot-bed or frame, and transplanted to any desired situation.

Abrus. Wild Liquorice. From *abros*, soft; in allusion to the delicacy of the leaves. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A. precatorius, the only species, is found in India, the West Indies, and the Mauritius. It is chiefly remarkable for its small egg-shaped seeds, which are of a brilliant scarlet color, with a black mark, indicating the place where they were attached to the pod. These seeds are much used for necklaces and other ornamental purposes, and are employed in India as a standard of weight, under the name of Rati. The weight of the Koh-i-noor diamond is known to have been ascertained in this way. The specific name is from *precatorius*, prayer, the seeds being used for rosaries.

Abutilon. Chinese Bell-flower. Arabic name for a plant like a Mallow. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

A highly interesting genus of hot and green-house plants, widely spread throughout all the warm latitudes. They produce white, rose, yellow, or orange colored flowers, all except the white being veined or striped with red and crimson. They grow rapidly when planted in sandy loam, and are readily propagated by cuttings.

Acacia. From *akazo*, to sharpen, on account of the prickliness of the species first noticed. *Linn. Polygamia-Monœcia.* Nat. Ord. *Leguminosæ.*

An extensive group of really handsome plants, many of them assuming in their native positions the character of timber trees; but with us are easily accommodated in a good conservatory, where their bright yellow flowers, produced in winter and early spring, are highly ornamental. They are for the most part natives of New Holland and adjacent countries, though a few have been found both in the East and West Indies. They succeed best when planted out in the green-house, but may be satisfactorily managed in pots, if placed in a sandy loam. Cuttings may be struck in a gentle heat under glass, though young plants are more easily obtained from seed.

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Acalypha. From *akalos*, unpleasant, and *aphe*, touch. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Euphorbiaceæ.*

A. tricolor, the only species worthy of cultivation, is a handsome green-house shrub, with variegated foliage, green, copper colored, and red, irregularly mottled and blotched. It is a native of the New Hebrides, introduced in 1866. It is a free-growing plant, suitable for the conservatory, or filling in rustic designs. It is increased by cuttings.

Acanthophœnix. A genus of Palms, established for two species of *Areca* from the Mascaren Islands. They do not appear to differ from that genus except in habit. The stems are shorter, and the petiole and midrib of the leaves are armed with long filiform prickles.

Acanthus. From *akanthos*, a spine; some of the species being spiny. *Linn. Didynamia-Angiosperma.* Nat. Ord. *Acanthaceæ.*

Hardy herbaceous plants of but little merit, except that they will grow in almost any soil or situation, and are of a stately character. It is conjectured that the leaf of *A. mollis* or *A. spinosus* furnished the ancients with the elegant leaves of the Corinthian column.

Acer. Maple. The word, in Latin, signifies vigorous or sharp, and comes from the Celtic *ac*, meaning a point. The name is used to designate this genus on account of the wood having formerly been much sought after for manufacturing into heads of pikes and lances. *Linn. Polygamia-Monœcia.* Nat. Ord. *Aceraceæ.*

This genus is composed of beautiful trees of large size, used extensively as shade trees, and is one of our most valuable trees for fine lumber. Thomas Hogg has lately introduced from Japan several low-growing, ornamental varieties, the foliage having the entire summer a rich autumnal appearance. They are perfectly hardy, and propagated by grafting on a dwarf species from Japan.

Achania. From *akanos*, closed; corolla does not expand wide. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

A genus of green-house shrubs, inhabiting South America, Mexico, and the West Indies. *A. Malvaviscus* is remarkable for the beauty of its scarlet axillary flowers, and its green, heart-shaped, sharply pointed leaves. Introduced in 1780. Propagated by cuttings.

Achillea. Yarrow. Named in honor of Achilles, a pupil of Chiron, who first used it in medicine. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

Free-flowering, hardy herbaceous plants, particularly suited to plant among rock-work, or in situations refused by more tender plants. They are chiefly European plants, and the prevailing colors of the flowers are yellow and white. *A. millefolium* is a native, and the common Yarrow, or Milfoil, of our roadsides and neglected fields.

Achimenes. From *cheimaino*, to suffer from cold, and *a* prefixed as an augmentive; alluding to the tenderness of the genus. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

One of the finest of modern introductions, the whole of the species being splendid summer ornaments of the green-house or conservatory. Flowers of all shades, from white to crimson. The scaly buds or rhizomes require to be kept perfectly dormant in winter, and about January to be potted in light loam and leaf-mould, plunged into a moderate hot-bed, and encouraged with a warm, genial atmosphere. When they have attained a few inches in height they

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may be placed several together in a shallow pan, or repotted separately, and by the end of April gradually inured to the temperature of the green-house, where they afford a blaze of beauty the whole of the summer. They are mostly natives of Mexico and Guatemala, though a few have been received from the West Indies.

Achyranthes. From *achuron*, chaff, and *anthos*, a flower; in allusion to the chaffy nature of the floral leaves. *Linn. Pentandria-Monogynia.* Nat. Ord. *Amaranthaceæ.*

Most of this genus are of but little value. Some of the species are very beautiful, and largely employed in ribbon gardening, or any situation where plants need to be "trained," as they can be made to grow in any desired shape or form. They require the full sunshine to develop their intense color. Propagated by cuttings.

Acineta. From *akineta*, immovable; the lip being jointless. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of curious epiphytal Orchids from Mexico. Flowers yellow, crimson, and yellow, and chocolate and crimson, borne on slender spikes about one foot long. They are of easy culture, requiring a house of medium temperature, and to be grown in baskets of moss. Introduced in 1837.

Acis. After *Acis*, a Sicilian shepherd. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A genus of hardy bulbs closely allied to the Snowflake. They propagate readily by offsets. They should have a sandy soil, and not be often divided.

Acnida. Water Hemp. Taken from *a*, privative, and *knide*, nettle; the plant being like a Nettle, but without stings. *Linn. Dioecia-Pentandria.* Nat. Ord. *Chonopodiaceæ.*

A. cannabina, the only species, is a coarse growing, uninteresting plant common in salt marshes on the coast from Massachusetts to the Carolinas.

Aconitum. Aconite, Monkshood, Wolfsbane. From *Acone*, a town in Bithynia, where found. *Linn. Polyandria-Trigynia.* Nat. Ord. *Ranunculaceæ.*

Herbaceous perennials, chiefly natives of Europe, but partly of North America and Japan. They are all hardy, and they are generally tall-growing, handsome plants, producing abundance of dark-blue, purple, or yellow flowers. They grow freely and are good plants for the open border. They are readily increased by division of the roots, which are generally tuberous, or by seeds. All the species are more or less poisonous, the poison being strongest in the root. Like all plants which grow with tall, erect stems, and produce their flowers in terminal spikes, they are only suitable for growing in borders in large gardens, or for clumps on a lawn. The species may be divided into two kinds: those with the helmet like a monk's cowl, which are called Monkshood, and those which have an elongated conical helmet, and are called Wolfsbane.

Acorus. Sweet Flag, Calamus. From *a*, privative, and *kore*, the pupil of the eye; referring to its medicinal qualities. *Linn. Hexandria-Monogynia.* Nat. Ord. *Orontiaceæ.*

A well-known genus of marsh plants, natives of the United States, Europe, and Asia. *A. calamus* is the Sweet Flag, esteemed for its medicinal virtues.

Acroclinium. Derivation of name unknown. *Linn. Syngenesia-Polygamia-Superflua.* Nat. Ord. *Compositæ.*

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This interesting annual is one of the most valuable of the class known as *Everlasting Flowers*, and is grown extensively for winter bouquets. The seeds should be started in the hot-bed and transplanted where they are to grow. Flowers should be picked as they begin to expand, and carefully dried in the shade. A plant of recent introduction from Western Australia.

Acrocomia. From *akros*, top, and *kome*, a tuft; referring to the way the leaves are produced. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A genus of gigantic Palms, natives of South America and the West Indies. Some of the species grow to the height of forty feet, with leaves fifteen feet in length, giving to the countries they inhabit a feature of exquisite grandeur. The young leaves are eaten as a vegetable, and the fruit, root, and stems are applied to various economic purposes. Some of the species are found in our green-houses, but are too large for general hot-house culture.

Acrophorus. From *akros*, summit, and *phoreo*, to bear. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of handsome green-house Ferns from Borneo and New Zealand. They are closely allied to the *Davallieæ*, and require the same treatment.

Acrophyllum. From *akros*, summit, and *phyllon*, a leaf; referring to the way in which the leaves are produced at the summit of the branches above the flowers. *Linn. Decandria-Monogynia.* Nat. Ord. *Cunoniaceæ.*

A small genus of very handsome green-house plants, that flower profusely in the spring. The flowers are small, white tinged with red, produced in dense whorls round the upper part of the stem and branches. They are natives of New Holland, introduced in 1836. Propagated by cuttings.

Acropteris. From *akros*, a point, and *pteris*, a Fern. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

This beautiful Fern, allied to *Asplenium*, is a green-house variety, readily propagated by division of the roots. It requires a light, loamy soil, with a liberal mixture of sand and leaf mould. A native of New Holland.

Acrostichum. Supposed to refer to the beginning of a verse, on account of the back surfaces of the leaves being so lined as to resemble in some degree the commencement of lines in poetry. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An interesting genus of tropical Ferns, that succeed well in a mixture of loam and leaf mould. Increased by division of roots, or by seed. Introduced from the West Indies in 1792.

Actæa. Baneberry. From *aktara*, the Elm; referring to the leaves. *Linn. Polyandria-Monogynia.* Nat. Ord. *Ranunculaceæ.*

A genus of hardy herbaceous perennials, of but little beauty; common in rich woods in the Northern States.

Actinidia. Derivation of name unknown. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Ternstrœmiaceæ.*

A. polygamia, the only species, is a handsome climbing shrub, native of Eastern Siberia. Flowers produced in axillary racemes, white and fragrant; these are succeeded by small edible berries. It is a rapid grower, quite ornamental, and useful for covering trellises. It is increased from seed or from cuttings.

ADH

Ada. A complimentary name. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A. aurantiaca, the only species, is a beautiful epiphytal Orchid found in high latitudes in New Grenada. It has broad, drooping, evergreen foliage, and a drooping flower-spike about ten inches long. The flowers are clear orange-yellow, placed rather far apart on the stalk, and never fully expand. It is a free-growing plant, and should have a cool, airy situation in the Orchid house. It is increased by division. Introduced in 1844.

Adam and Eve. See *Aplectrum.*

Adam's Needle. See *Yucca.*

Adansonia. Baobab Tree. Named in honor of *Michel Adanson*, a famous French botanist and author, born in 1727. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Bombaceæ.*

A. digitata (called Monkey Bread) is a native of Western Africa, and is also accredited to Egypt and Abyssinia. Previous to the discovery of the *Sequoia* in California, the Adansonia, or *Baobab*, as it is popularly called, was considered the largest tree in the world, some specimens being found thirty feet in diameter; the trunks, only twenty feet below the branches, which are forty to fifty feet long, are of the size of great trees, with their remote branches touching the ground. The roots for a long distance are exposed, some of them measuring more than a hundred feet in length on the surface; how much longer they are, unexposed, could not readily be ascertained. The fruit resembles a gourd, is from nine to twelve inches long, and about four in diameter. The pulp is farinaceous and fibrous, and when ripe has a refreshing, acid taste. Eaten with sugar it is both pleasant and wholesome. The negroes on the western coast apply the trunks of these trees to a very extraordinary purpose. The tree is liable to be attacked by a fungus, which, vegetating in the woody part, without changing the color or appearance, destroys life, and renders the part so attacked as soft as the pith of trees in general. Such trunks are then hollowed into chambers, and within these are suspended the dead bodies of those to whom are refused the honor of burial. There they become mummies, perfectly dry, and well preserved, without further preparation or embalming, and are known by the name *giuriots*.

Adder's Mouth. The common name of the *Microstylis*, a small bulbous plant, common in moist woods southward.

Adder's Tongue. A name applied to the *Erythronium Americanum*, and also to the Fern, *Ophioglossum vulgatum.*

Adenandria. From *aden*, a gland, and *aner*, the stamen or male organ; referring to the aspect of the anthers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Rutaceæ.*

A somewhat extensive genus of green-house evergreen shrubs from the Cape of Good Hope. Some of them are cultivated for their large terminal corymbs of bright pink flowers, which are produced in June. All the species are increased by cuttings of young wood. Introduced in 1812.

Adhatoda. Native name. *Linn. Decandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A small genus of green-house shrubs, natives of India. The few species composing this genus were formerly included in *Justicia*. One of the more common species, *A. vasica*, was formerly called *Justicia Adhatoda*. They bear a close resemblance to the *Justicias*, and require the same treatment.

ADI

Adiantopsis. From *adiantum* and *opsis*, like; resembling the Maidenhair. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of elegant little Ferns from South America, the West Indies, and Africa. *A. radiata*, one of the best known species, is common in the West Indies. The fronds rise about a foot high from a tufted crown, and radiate in a regular manner from a common center. The species are often seen in cultivation, on account of their small size and elegant character. Propagated from seed.

Adiantum. Maidenhair Fern. From *adiantos*, dry; the smooth foliage repelling rain-drops. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

Of this extensive and much-admired genus of Ferns, this country furnishes but one variety, *A. pedatum*, our common Maidenhair, which grows in moist woods in nearly every section. Taken up in early spring and transplanted into shady corners of our gardens, it grows readily, and is indispensable in the natural arrangement of flowers in vases or baskets. Some of the exotic species of this genus may safely be pronounced the most beautiful Ferns known, which is a very broad assertion, in view of the very many rare and beautiful plants to be found in this natural order. All doubts, however, of the truth of the assertion will be removed when we see a well-grown plant of *A. Farleyense* in the fern-house. This interesting plant is a native of Barbadoes, whence it was introduced in 1864. It is the most distinct and beautiful of all the Maidenhair Ferns, and the most difficult to grow to perfection. It requires a warm, moist atmosphere. *A. gracilis* and *A. cuneatum* are magnificent plants, and are more easily grown. There are many other rare species under cultivation. The growing of this genus from spores has for a long time been practiced, and the several species, with the exception of *Farleyense*, have been increased at a rapid rate in this way. But getting new varieties from spores, after hybridizing some of the finer species, is a new and unexpected result that has been achieved in a most astonishing and satisfactory manner by F. Roenbeck, of Bayonne, N. J., who has not only given us several varieties, but one, *A. Roenbeckii*, which bears his name, that is, without exception, the most useful as well as the most graceful of any yet introduced. The fronds are erect, with a metallic luster, combined with the delicacy and grace of the finer species. It is well adapted for specimen culture, and is particularly useful in the arrangement of cut flowers, and when so used looks like a lace veil hung over the flowers. This variety was first exhibited in 1876.

Adlumia. Mountain Fringe. Dedicated by Rafinesque to Major Adlum, an American author. *Linn. Diadelphia-Hexandria.* Nat. Ord. *Fumariaceæ.*

This beautiful climber is a hardy biennial, growing in moist woods in New York and the Alleghany Mountains of Virginia. It is commonly called Fumatory, Alleghany Vine, and various other local names. It grows readily from seed, which should be sown in May, near a trellis or arbor. The plants will flower freely, without further care, the following season.

Adonis. This owes its classical name to Adonis, the favorite of Venus; some say its existence also, maintaining that it sprung from his blood when dying. Others, again, trace its origin to the tears which Venus shed upon her lover's

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body. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

Herbaceous plants with showy flowers, natives of Europe, and of easy culture in any soil. The most ornamental species are *A. vernalis*, the spring-flowering Adonis, a perennial with bright yellow flowers, which is quite hardy, and is easily increased by division of the root; and *A. autumnalis*, the common annual *Flos Adonis*, or Pheasant's Eye, with dark crimson flowers. The annual kinds should be sown in autumn, as they will stand the winter in the open air; or in February or March, as they are a long time in coming up.

Æchmea. From *aichme*, a point; in reference to the rigid points on the calices, or flower envelopes. *Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

A small genus of tropical plants, some of which are epiphytes, growing on the tops of very tall trees. They have strap, or sword-shaped leaves, and produce panicles of brilliant scarlet flowers. None of the species are found in cultivation, except in rare collections. Propagated by division. Introduced in 1844.

Aerides. From *aer*, the air; in reference to the power they have of living on air. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A splendid genus of East Indian epiphytal Orchids, remarkable for their beautiful white, pink, or rose-colored, fragrant flowers, and for their rich evergreen foliage. The general appearance of these plants, their wonderful tenacity of life, the remarkable property they possess of imbibing the whole of their nutriment from the atmosphere, without the intervention of any kind of earth, and the elegance and rich perfume of their flowers, combine to make them objects of universal admiration. They require to be grown in a high temperature and a very moist atmosphere. The more popular species are of quite recent introduction.

Æschynanthus. From *aischuno*, to be ashamed, and *anthos*, a flower. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

A beautiful genus of tropical epiphytal plants. The species are chiefly found in tropical Asia and the East Indies, and may properly be classed with the most gorgeous green-house plants. They have mostly pendant stems, opposite fleshy leaves, and scarlet, or orange-scarlet flowers. One of the finer species, *Æ. speciosus*, is a native of Java. It is of sub-erect habit, with fascicles of about twenty erect, long-tubed flowers, of rich orange-yellow below, and passing into scarlet at the top, with yellow and black markings. Another species from Java, *Æ. longiflorus*, has bright crimson flowers, and is of the same general habit. All the species require to be grown in considerable heat and moisture, and succeed well fastened upon blocks, in the same manner as epiphytal Orchids. They are easily propagated by cuttings. Introduced in 1845.

Æsculus. Horse Chestnut, Buckeye. From *esca*, nourishment; referring to the ground flour from the kernels of some species. *Linn. Heptandria-Monogynia.* Nat. Ord. *Sapindaceæ.*

A genus of hardy ornamental deciduous trees, too well known to need description. *Æ. Hippocastanum*, the common Horse Chestnut, is a native of Asia, introduced into our nurseries from Europe at an early day. *Æ. glabra* is a large growing tree, common South and West, particularly in Ohio, whence the name Buckeye State. *Æ.*

flava, the Sweet Buckeye, and *Æ. pavia*, the Red Buckeye, are shrubs or small trees, natives of Virginia, and West and South. *Æ. Californica* is a beautiful, large, spreading shrub, the most ornamental of the whole genus. Its flowers are rose-colored, in racemes about six inches long, and are produced in great abundance from June till July. All the species are propagated by seeds.

Æthusa. Fool's Parsley. The name alludes to the acridity of the plants, and is derived from *aithusso*, to heat or make hot. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

African Lily. See *Agapanthus.*

African Marigold. See *Tagetes.*

Agalmyla. From *agalma*, an ornament, and *hule*, a forest. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneriaceæ.*

A small genus of beautiful green-house or hot-house plants from the islands of the Eastern Archipelago. *A. staminea* is a very handsome plant, epiphytal in habit, creeping and rooting on the trunks of trees. It has strong stems, large, fleshy, Gloxinia-like leaves, and axillary fascicles of from twelve to fifteen flowers each, tubular-shaped, two inches long, bright scarlet. Propagated by cuttings.

Agapanthus. From *agape*, love, and *anthos*, a flower. *Linn. Hexandria-Tetragynia.* Nat. Ord. *Liliaceæ.*

The Blue African Lily, *A. umbellatus*, is a noble plant, with thick, fleshy roots, and retains its leaves all the winter. There is a variety with striped leaves. *A. albidus* has white flowers, but it does not differ from the common kind in any other respect. The African Lilies all require a loamy soil, enriched with very rotten manure from an old hot-bed, loosely shaken down in the pot, but not pressed; and they should be fully exposed to the light. They should also have plenty of water when they are in a growing state, and be shifted repeatedly into larger pots, each only a little larger than the preceding one, till the flower-buds are formed. The plants are always large before they flower; and when the flower-stalks appear, the plant should be in a large pot, so that the roots may have plenty of room. They should be abundantly supplied with water, taking care, however, not to let any remain in a stagnant state about the roots. Thus treated, this plant will frequently send up a flower-stalk above three feet high, crowned with twenty or thirty flowers, which will open in succession. It flowers in summer, and forms a noble ornament to an architectural terrace, or a fine object on a lawn.

Agaricus. Derived from *Agaria*, the name of a town in Samatia. *Linn. Cryptogamia-Fungi.* Nat. Ord. *Mushrooms* (Fungi).

This is the most extensive genus known in the whole vegetable kingdom, and is divided into several different groups. Some of the species are very beautiful in form and color. Very many are deadly poisonous if eaten, while others, as *A. campestris*, our common edible mushroom, are rare delicacies.

Agave. Century Plant, American Aloe. From *agavos*, admirable, referring to the stately form in which some of them flower. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

This celebrated and splendid plant is a native of South America, introduced in 1640. The varieties with striped foliage are considered the more desirable as decorative plants. It was at one time a prevailing idea that this plant only flowered once in a hundred years; but this is found now to be a popular error. If given sufficient heat, it will flower when ten or twelve years old. The flower stem rises from the center of the plant to a height of about thirty feet, bearing an immense number of yellowish-green flowers, after which the plant perishes. New plants are formed around the base of the old one in the form of suckers. It furnishes a variety of products: the plants form impenetrable fences; the leaves furnish fibers of various qualities, from that used in the finest thread to that in the strongest rope cables; the juice, when the watery part is evaporated, forms a good soap, and will mix and form a lather with salt water as well as fresh; a very intoxicating drink is also made from the juice, as well as other preparations of a similar nature; the leaves are made into razor-strops, and are also used in scouring all sorts of culinary utensils.

Ageratum. The colors are constant, always clear; hence the name is compounded of *a*, privative, and *geras*, old. *Linn. Syngenesia-Polygamia.* Nat. Ord. *Compositæ.*

The species *A. Mexicanum*, the one usually found in our gardens, is an annual, with small, pale blue flowers, formed in curiously shaped heads. *A. angustifolium* is a hardy North American perennial species, with pure white flowers.

Aglamorpha. From *aglaos*, beautiful, and *morpha*, a form. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A. Meyeniana, the only species, is a beautiful herbaceous Fern, a native of the Philippine Islands. It is propagated by division or from spores, and requires the same treatment as *Polypodium.*

Agrimonia. Agrimony. A corruption of *Argemone. Linn. Dodecandria-Digynia.* Nat. Ord. *Rosaceæ.*

A small genus of yellow-flowered, weedy plants, common throughout the United States. The larger flowered, or common Agrimony, is a native of Europe, but has become pretty generally naturalized. They are plants of but little interest.

Agrostemma. Rose Campion. From *agros*, a field, and *stemma*, a crown; referring to the beauty of the flower. *Linn. Decandria-Tetragynia.* Nat. Ord. *Caryophyllaceæ.*

Hardy perennial, introduced from Russia in 1834. Suitable for border plants, their showy red flowers contrasting finely with shrubbery. Propagated by division of roots or by seeds.

Agrostis. Bent Grass, Red Top. This is the Greek name for all grasses, from *agros*, a field. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A well-known genus of grasses, including *A. canina*, the Rhode Island Bent Grass, *A. stolonifera*, the Creeping Bent Grass, and *A. vulgaris*, the common Red Top. These species have all been introduced from Europe, but are now thoroughly naturalized in this country.

Ailantus. From *ailanto*, Tree of Heaven; referring to its lofty growth. *Linn. Polygamia-Dicœcia.* Nat. Ord. *Xanthoxylaceæ.*

Deciduous trees of rapid growth, natives of China. They were at one time extensively planted as street trees, and should not now be so generally discarded, as they will thrive well in cities and barren soils, making a beautiful shade tree, as well as valuable timber. The only objection that has ever been made to them is the unpleasant odor of their flowers; that objection can be easily avoided. This tree is dicœcious,

and is rapidly increased by root-cuttings. By taking cuttings from the female plant, the flowers of which are inodorous, they can be increased to any extent.

Air Plants. These are plants that grow on trees, or other objects, and not in the earth, and derive their nutriment from the atmosphere. The term was formerly, and is still to some extent, applied to epiphytal Orchids. There are, however, many other families of air plants. The class is to be distinguished from the various parasites that have no roots in the earth, but derive their nourishment directly from the plants on which they grow.

Ajuga. Bugle. From *a*, privative, and *zugon*, a yoke; in reference to the calyx being one-leaved. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Labiatæ.*

A small genus of hardy annual and perennial herbaceous plants. *A. reptans* (common Bugle) has been lately introduced into the garden, and given a position in massing and ribbon borders of plants for its dark-colored foliage. The species were at one time highly esteemed for the medicinal properties they were supposed to possess. "Ruellus writeth that they commonly said in France, howe he needeth neither physician nor surgeon that hathe Bugle and Sanicle, for it not only cureth woundes, being inwardly taken, but also applied to them outwardly."—*Gerarde.* They are propagated readily from seed.

Akebia. The name it bears in Japan. *Linn. Monœcia-Hexandria.* Nat. Ord. *Lardizabalaceæ.*

A. quinata was introduced from China, in 1844, by Robert Fortune. It is a hardy climber, of rapid growth, suitable for large arbors or trellises, in sunny or shady situations. It will twine around old trees, completely covering the branches, from which it will hang in graceful festoons. The color of the flower is dark brown, and it is very sweet-scented. In a light, rich soil it will grow to the height of thirty feet. It is propagated readily by layering or cuttings.

Albuca. From *albus*, white, referring to the prevalence of white flowers in the genus (not a very happy allusion, though, because the flowers are mostly green). *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

This is a genus of but little beauty, closely allied to the *Ornithogalum*, introduced from the Cape of Good Hope about 1750. They are tender bulbous plants, easily cultivated in the green-house, grown in pots in light, sandy soil. They flower in May and June.

Alder. See *Alnus.*

Aletris. Colic-root, Star-grass. From *aletron*, meal; referring to the powdery appearance of the whole plant. *Linn. Hexandria-Monogynia.* Nat. Ord. *Hæmodoraceæ.*

There are but two species included in this genus, both natives of the United States, and pretty generally distributed. *A. farinosa* is highly esteemed for its medicinal properties, and is a very pretty plant for the border. It is a herbaceous perennial, the leaves growing in a close tuft, from which arises a flower-stem from one to three feet high, terminating in a spiked raceme of small, white, oblong, bell-shaped flowers. Propagated by division or by seed.

Aleuritopteris. A synonym of *Cheilanthes*, which see.

Alfalfa. See *Medicago.*

Alisma. Water Plantain. *A. plantago* is a common, uninteresting aquatic, found in shallow water. Introduced from Europe.

Allamanda. Named in honor of Dr. Allamand, of Leyden. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ* (Dogworts).

This genus consists principally of handsome climbing green-house shrubs. *A. Schottii*, a native of Brazil, produces immense numbers of large, funnel-shaped flowers, which are of a full yellow, with a deeper yellow throat. They delight in a warm, moist situation, and should have a light, fibrous soil. Propagated by cuttings. Introduced in 1846.

Alleghany Vine. See *Adlumia.*

Alligator Pear. See *Persea.*

Allium. From the Celtic *all*, meaning hot or burning; referring to the well-known qualities of the genus (Onion). *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Of the one hundred and fifty species of this tribe, but few are considered ornamental; indeed, the family, probably from prejudice, has been much neglected, where many far less showy plants have found favor. *A. Moly* produces large trusses of golden yellow flowers in June. *A. Neapolitanum* is a fine species, bearing pure white flowers in a large umbel. The former is perfectly hardy, and worthy a place in the garden. The latter is tender, requiring the protection of the green-house. Propagated readily by offsets.

Allosorus. From *allos*, diverse, and *soros*, a heap; in allusion to the changing of the sori. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of very beautiful dwarf Ferns. *A. crispus*, a British Fern, sometimes called the Mountain Parsley Fern, is a beautiful plant for rockeries. Two or three exotic species are favorites in the green-house. They are propagated from spores.

Allspice-Tree. See *Pimenta.*

Almeria. See *Amygdalus.*

Alnus. The Alder. From *al*, near, and *lan*, the bank of a river; in reference to the situation where the Alder delights to grow. *Linn. Monœcia-Tetrandria.* Nat. Ord. *Betulaceæ.*

An extensive genus of shrubs or small trees common throughout North America and Europe. The principal use of the Alder is for charcoal, which is highly valued in the manufacture of gunpowder.

Alocasia. A slight alteration of *Colocasia. Linn. Monœcia-Heptandria.* Nat. Ord. *Araceæ.*

This name is applied to a section of the genus *Colocasia;* by some considered a distinct genus. Natives of India. *A. metallica* is a magnificent species from Borneo, producing very large oval leaves, having a rich bronze-colored surface, making it a conspicuous ornament for the hot-house. The leaves look like large polished metal shields. Propagated by division of roots. Introduced in 1859.

Aloe. From *alloeh*, its Arabic name. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

The name Aloe is so frequently applied in conversation to the American Aloe, or Agave, that many persons are not aware that the true Aloe is not only quite a different genus, but belongs to a different natural order, the American Aloe being one of the Amaryllis tribe, while the true Aloe belongs to the Lily tribe. The qualities of the two plants are also essentially different, the American Aloe abounding in starchy, nourishing matter, while every part of the true Aloe is purgative. The true Aloe also flowers every year, and the flowers are tube-shaped, and produced on a spike; while each plant of the

American Aloe flowers but once, sending up an enormous flower-stem with candelabra-like branches and cup-shaped flowers. The true Aloes are succulent plants, natives of the Cape of Good Hope, and grow best in this country in green-houses or rooms, in a light, sandy soil. To this, when the plants are wanted to attain a large size, may be added a little leaf-mould. When grown in rooms, a poor soil is, however, preferable, as it keeps the plants of a smaller and more manageable size, and makes them less easily affected by changes of temperature. The colors of the flowers will also be richer when the plants are grown in poor soil. The drug called aloes is made principally from the pulp of the fleshy leaf of the *A. socotrina*, the flowers of which are red, tipped with green ; but it is also made from several other species.

Alonsoa. Named after Zanomi Alonso, a Spaniard, by the authors of *Flora Peruviana*. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

The Mask Flower. The species are low under-shrubs, or herbaceous plants, natives of Peru, and two of them, *A. incisifolia* and *A. linearis*, are very ornamental, either in the green-house, or grown as annuals in the open border during summer. They thrive well in any light rich soil, and are readily increased by seeds or cuttings. They are very desirable for flower-gardens, on account of the brilliant scarlet of their flowers ; and where there is no green-house, the plants should be raised from seeds sown on a hot-bed in February, or struck from cuttings early in spring, and brought forward in a frame or pit, and turned out into the open air in May.

Alopecurus. The generic name of the Foxtail Grass.

Aloysia. Lemon Verbena. Named in honor of *Maria Louisa*, Queen of Spain. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Verbenaceæ.*

The only known species of this genus is *A. citriodora*, introduced from Chili in 1784, and formerly called *Verbena triphylla*, or the Lemon-scented Verbena. Under this name it is generally sold, and is a universal favorite, readily propagated from cuttings, and planted in the open border in May. If taken up after a light frost and put in a cold frame or cool cellar during winter, the plants will keep well ; and, planted out in spring again, they make large and pleasing shrubs. The leaves, when dried, will retain their odor for many years.

Alpine Azalea. See *Loiseleuria.*

Alsophila. From *alsos*, a grove, and *phileo*, to love ; in reference to the situation best suited to the plants. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

This genus contains some of our most beautiful green-house Tree Ferns. *A. Australis*, the type, is a native of Australia, and one of the most ornamental of the order. In the ordinary green-house it thrives finely, producing its graceful fronds from three to four feet long and one and a half wide. There are several species, all tropical, and all worthy a place in the fern-house. They are increased by division or from spores. Introduced in 1833.

Alstrœmeria. In honor of Baron Alstrœmer, a Swedish botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

This is a genus of tuberous-rooted plants, with beautiful flowers, natives of South America, and capable of being grown to a high degree of perfection in the hot-house, green-house, or open air, according to the species. The soil which suits all the Alstrœmerias is a mixture of sandy loam and leaf-mould, or well-rotted manure. Of all the hot-house species, *A. Ligtu*, with white and scarlet flowers, is the most difficult to flower; but by giving it abundance of water during the summer, and a strong heat in December, it will flower in February; and one plant will scent a whole house with fragrance like that of Mignonette. After flowering, the plants ought to be allowed to rest for three months, during which time very little water ought to be given. After this they should be repotted and encouraged to grow by giving them plenty of water, etc. *A. edulis* is another hot-house species, which climbs to the height of ten or twelve feet, and, like all other climbers, thrives best when turned out into the open border. Propagation is effected by separation of the tubers, or by seed; the latter is apt to produce new varieties, as they are by no means constant from seed.

Alternanthera. Alluding to the *anthers* being *alternately* fertile and barren. *Linn. Pentandria-Monogynia.* Nat. Ord. *Amaranthaceæ.*

This useful little green-house perennial for ribbon beds and edgings is a native of Buenos Ayres, introduced in 1732. Propagated readily from cuttings. The variegated-leaved varieties alone are cultivated, the flowers being inconspicuous.

Althæa. Marsh Mallow. From *altheo*, to cure; in reference to its medicinal qualities. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

There are many annuals in this family, none, however, of much merit. The Marsh Mallows are hardy perennials, and formerly much used as border plants. *A. rosea*, the common Hollyhock, is one of our most splendid ornamental biennials. It grows to the height of from five to eight feet, and there are varieties of almost every color, including white, and purple so deep as to be almost black. The seeds of Hollyhock, which is a biennial, should be sown in March; in April, when the plants come up, they should be thinned out, and then suffered to remain till September, when they should be transplanted to the place where they are to flower. Introduced from China in 1573. The common hardy shrub known as Althæa is *Hibiscus Syriacus.*

Alum Root. The common name of *Heuchera Americana*, the roots of which are very astringent.

Alyssum. Derived from *a*, privative, and *lyssa*, rage; from a notion among the ancients that the plant possessed the power of allaying anger. *Linn. Tetradynamia-Siliculosa.* Nat. Ord. *Cruciferæ.*

Dwarf hardy perennials, or sub-shrubby plants, with cruciferous flowers. *A. saxatile* is very suitable for rock-work, or the front part of a flower border, and forms a beautiful spring-blooming bed in the flower garden. Flowers produced in large clusters, of a deep, pure yellow. It is increased by cuttings and seeds. Good garden soil. The herbaceous species are propagated by division, the sub-shrubby ones by cuttings. Vigorous two-year-old plants are the best for flowering; the others are unimportant. The plant commonly called Sweet Alyssum is not of this genus; it is *Koniga maritima*, which see.

Amaranthus. Amaranth. Derived from *a*, not, and *maraino*, to wither; in reference to the length of time some flowers retain their color. *Linn. Monœcia-Pentandria.* Nat. Ord. *Amaranthaceæ.*

Ornamental foliaged plants, of an extremely graceful and interesting character, producing a striking effect, whether grown for the decoration of the conservatory or the out-door flower garden. If the seeds are sown early in a warm hot-bed and planted out the last of May or in June, in rich soil, they make exceedingly handsome specimens for the center of beds, or mixed flower or shrubbery borders. Most of the varieties are natives of the East Indies, and were introduced into England about 1600. The well-known *A. tricolor*, or "Joseph's Coat," is one of the most beautiful of ornamental leaved plants.

Amaryllis. The name of a nymph celebrated by the poet Virgil. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

Bulbous plants, chiefly natives of the Cape of Good Hope and South America, but which have been increased in number tenfold by hybrids and varieties raised in England and on the Continent. Louis Van Houtte, of Ghent, having made a specialty of this plant, has produced the finest hybrids in cultivation. All the kinds are eminently ornamental, and they are all of easy culture, the great secret being to give them alternately a season of excitement and a season of repose. To do this effectually, the plants should be abundantly supplied with water and heat, and placed near the glass when they are coming into flower, and water should be withheld from them by degrees when they have done flowering, till they have entirely ceased growing, when they should be kept quite dry and in a state of rest. When in this state they may be placed in any obscure part of a green-house where it is dry, and of a temperature not under forty or fifty degrees. If kept in such a situation during winter, some kinds may be turned out into a warm border in spring, where they will flower; and if the season be fine, they will renew their bulbs in time to be taken up before the approach of frost. The chief value of these plants, however, is to produce flowers in the winter season, which they readily do if they are kept dry and dormant during the latter part of the summer and autumn. Indeed, by having a large stock of these bulbs, a regular succession of flowers may be procured during every month in the year. When the dormant bulbs are intended to be thrown into flower, they should be fresh potted in sandy loam and leaf-mould, and put in a hot-house or hot-bed, the heat beginning at fifty degrees, and ascending to sixty or seventy degrees; and when the leaves appear, they should be abundantly supplied with water. Where seeds are wanted the watering must be continued, though somewhat less abundantly, after the flowers have faded, till the seeds are ripe; and when these are gathered, they ought to be sown immediately in light sandy loam, and placed in a frame, or near the glass, in a moist part of the hot-house. If the young plants are potted off as soon as they are an inch or two in height, and shifted frequently in the course of the growing season, they will attain a flowering size in from fifteen to twenty months. The pots in which these and all other bulbs are grown ought to be thoroughly drained by a handful or more of potsherds (broken pots) laid in the bottom of each pot, and covered with turfy loam, and the mould used should also be turfy, in order the more freely to admit the passage of water. Our long and warm summers enable us to cultivate many of these beautiful bulbs in the open air, merely protecting the

roots in the winter in the same manner as those of the Dahlia.

Amaryllis formosissima. See *Sprekelia.*

Ambrosia. The botanical name of Ragweed.

Amelanchier. June Berry, Shad Berry, Service Berry. From *Amelanchier*, the popular name of one of the species in Savoy. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Pomaceæ.*

A. Canadensis (the only American species) and its numerous varieties are low trees, common in the woods in the Northern States, remarkable for their numerous white flowers, which appear about the middle of April, completely covering the tree before the foliage or flowers of the neighboring trees have commenced their growth. The foliage resembles that of the Pear, and changes to a bright yellow in autumn. The fruit is a dark purple berry, ripe in July or August, and has an agreeable flavor.

American Aloe. *Agave Americana*, which see.

American Centaury. The popular name for *Sabbatia.*

American Columbo. See *Frasera Carolinensis.*

American Cowslip. *Dodecatheon Meadia.*

American Frog's Bit. See *Limnobium.*

American Ivy. *Ampelopsis quinquefolia.*

American Pitcher Plant. See *Sarracenia.*

Ammobium. From *ammos*, sand, and *bio*, to live; in reference to the sandy soil in which it thrives. *Linn. Syngenesia-Polygamia.* Nat. Ord. *Compositæ.*

Pretty annuals of hardy character from New Holland, producing white everlasting flowers. The seed may be sown in the open border, in almost any situation, between the middle of March and the end of May.

Amomum. From *a*, not, and *momos*, impurity; in reference to its supposed quality of counteracting poison. *Linn. Monandria-Monogynia.* Nat. Ord. *Zingiberaceæ.*

This genus of aromatic herbs furnishes the Grains of Paradise and the Cardamom Seeds, which are aromatic and stimulant. The plants grow readily in the green-house, and are propagated by division of the root. Introduced in 1820 from the East Indies.

Amorpha. False Indigo. From *a*, not, and *morpha*, form; in reference to the irregularity of the flowers. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A small genus of large, spreading shrubs, natives of North America. The leaves are compound, resembling the Locust, only the leaflets are finer. The flowers are dark purple or violet, spangled with yellow, disposed in long panicles on the tops of the branches. It is a very ornamental shrub for the lawn. It is readily propagated from suckers, which are produced in abundance. *A. canescens* is a small growing species, common in the Western and Southern States. It has received the local name of Lead Plant, on account of the white, hairy down with which it is covered.

Amorphophallus. From *amorphus*, disfigured, and *phallus*, form of spadix. *Linn. Monœcia-Polyandria.* Nat. Ord. *Araceæ.*

These plants were formerly in the genus *Arum*, from which they are distinguished by their spreading spathes. They are natives of India and other parts of tropical Asia, where they are cultivated for the abundance of starch that is found in their root-stocks. Most varieties are ornamental plants for the green-house or garden. After planting, the first appearance is the

flower stalk, which rises to the height of two feet. As it expands, the fetor it exhales is overpowering and sickening, and so perfectly resembles that of carrion as to induce flies to cover the club of the spadix with their eggs. Propagated by offsets.

Ampelopsis. Woodbine. From *ampelos*, a vine, and *opsis*, resemblance; in reference to its resemblance to the Grape vine. *Linn. Pentandria-Monogynia.* Nat. Ord. *Vitaceæ.*

A. hederacea is well known by its common names of Virginia Creeper and Five-leaved Ivy. Its flowers have no beauty, but it is worth cultivating as an ornamental plant, from the brilliant scarlet and orange which its leaves assume in autumn, and which look particularly well at that season, when intermingled with those of the common Ivy, from the fine contrast they afford. The plant is of very rapid growth in any kind of soil, and it is propagated by layers or cuttings. The Virginia Creeper is one of our finest indigenous climbers. It grows very rapidly, attaches itself firmly to wood or stone buildings, or to the trunks of old trees, and soon covers these objects with a fine mantle of rich foliage. Nothing can be more admirably adapted than this plant for concealing and disguising the unsightly stone fences which are so common, and so great a deformity in many parts of the country. *A. Veitchii* is a new variety, more compact in habit, very bright, dark foliage, and clings with great tenacity to wood as well as brick or stone walls. It is perfectly hardy. Propagated by layers, cuttings, or seeds.

Ampelygonum. The name is in allusion to the grape-like fruit. *Linn. Octandria-Trigynia.* Nat. Ord. *Polygonaceæ.*

This interesting species from China is one from which the finest quality of indigo is obtained. It is an herbaceous perennial, obtained readily from seed.

Amsonia. In memory of *Charles Amson*, a celebrated traveler. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

A small genus of herbaceous perennial plants, with beautiful blue flowers produced in terminal panicled clusters. The several species are natives of the United States. *A. Tabernæmontana*, one of the more beautiful species, is common on low grounds in the Southern and Western States.

Amygdalus. From *amysso*, to lacerate; in reference to the fissured channels in the stone of the fruit; but some suppose from a Hebrew word signifying *vigilant*, as its early flowers announce the return of spring. *Linn. Icosandria-Monogynia.* Nat. Ord. *Rosaceæ.*

A. nana is the common *Flowering Almond* of the gardens, of which there are several varieties, the double white and double pink alone being desirable. Native of Russia. Introduced in 1683. Propagated readily by suckers. *A. communis* bears the sweet, and *A. amarus* the bitter Almonds of commerce. They are supposed to be natives of western Asia, and are mentioned in sacred history as among the best fruits of the land of Canaan. The Almond is plentiful in China, in most eastern countries, and also in Barbary. It is extensively cultivated in Italy, Spain, and the south of France. The several varieties, such as hard, soft, or paper shelled, have all originated from *A. communis*.

Anacardium. From *ana*, like, and *kardia*, the heart; in reference to the form of the nut. *Linn. Polygamia-Dioecia.* Nat. Ord. *Anacardiaceæ.*

Ornamental evergreen trees, natives of the East and West Indies, remarkable for their beautiful, fragrant flowers, and for their fruit, known as the Cashew-nut. The trees are too large for introduction into the green-house.

Anæctochilus. From *anoiktos*, open, and *cheilos*, a lip; the apex spreading. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

This admired little plant has small, white, rather inconspicuous flowers, but its want of beauty here is fully compensated for in the rich and lovely markings of the leaves, which are covered with a gold network on a chocolate-colored, velvet-like ground. It should be potted in a mixture of leaf mould and moss, and a bell-glass kept continually over it, in the warmest part of the hot-house, in order to assimilate its present condition with the native one in the hot, humid jungles of the East, from whence it is derived. First introduced in 1836.

Anagallis. Pimpernel. From *anagelao*, to laugh; fabled to possess a virtue to remove sadness. *Linn. Pentandria-Monogynia.* Nat. Ord. *Primulaceæ.*

A genus of pretty dwarf annual and biennial plants. The former have given place to the many seminal improvements of the latter, insomuch as to be rarely met with. They are universal favorites for planting in the beds of the flower garden, where their numerous blue or red flowers, expanded whenever the sun shines, are very effective. They are propagated by seeds or cuttings. When seed is desired, the branch or plant on which it is growing should be taken entire, a little before the autumn frosts begin, and hung up in a dry, sunny place, such as before the windows of a shed, allowing the pods to remain upon it until wanted in the spring for sowing, as it requires a long time to become properly ripened; afterward it vegetates freely if sown in a gentle hot-bed. The garden varieties are hybrids. The species under cultivation were introduced from Southern Europe in 1830. *A. arvensis*, the common Pimpernel, is plenty in waste, sandy places in the United States, having been introduced from Europe and become thoroughly naturalized.

Ananassa. Pineapple. From *nanas*, the Guiana name. *Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

A. sativa, the common Pineapple, is universally acknowledged to be one of the most delicious fruits in existence. More than three hundred years ago it was described by Jean de Lery, a Huguenot priest, as being of such excellence that the gods might luxuriate upon it, and that it should only be gathered by the hand of Venus. It is a native of Brazil, and was first introduced into Europe in 1555, having been sent there by André Thevet, a monk, from Peru. The plant is perennial, not unlike the *Aloe*, but the leaves are much thinner, and of a hard, fibrous texture, with numerous short, sharp spines on the edges. The fruit varies like most other species, there now being nearly fifty varieties in cultivation.

Anastatica. From *anastatis*, resurrection, in reference to its hygrometrical property. *Linn. Tetradynamia.* Nat. Ord. *Cruciferæ.*

An annual plant, indigenous to the Egyptian deserts, and called the Rose of Jericho. When full grown it contracts its rigid branches into a round ball, and is then tossed about by the wind. When it alights in water, or damp ground, the branches relax and open out, as if its life were renewed; hence its name of *Resurrection*

Plant. Among the superstitious tales told of it is, that "it first bloomed on Christmas Eve, to salute the birth of the Redeemer, and paid homage to His resurrection by remaining expanded until Easter." This curious annual can readily be grown from seed, but will not stand the severity of our winters; they can, however, be taken up and kept dry in the house. When wanted to expand, put them in a saucer of water.

Anchusa. From *anchousa*, a cosmetic paint made from one of the species; used for staining the skin. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ.*

Coarse, hardy herbaceous plants, suitable for deep shrubbery borders or any unfrequented places. Most of the species have purple flowers.

Andromeda. Kill Calf. A classical name, after the daughter of Cepheus and Cassiope, king and queen of Æthiopia. *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ.*

A. Mariana, so common on the plains of Long Island, is a beautiful representative of this genus, one much sought after in Europe, where it is considered one of the finest American plants. They are beautiful shrubs, growing about two feet high, with leaves similar to those of the privet; flowers white, in spikes or racemes three to eight inches long, produced in June. They are conspicuous throughout the season on account of their form and foliage. Propagated by seeds, which should be sown as soon as ripe.

Ancylogyne. From *ankylos*, curved, and *gyne*, a female; the pistil is curved. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A small genus of tropical under-shrubs, with terminal spikes or racemes of showy flowers. *A. longiflora*, from Guayaquil, is a valuable species for the green-house. It produces large, drooping panicles of rich purple, tubulous flowers, two inches long, and of a most attractive character. Propagated by cuttings. Introduced in 1866.

Androsace. From *aner*, a man, and *sacos*, a buckler, in reference to the resemblance of the anther to an ancient buckler. *Linn. Pentandria-Monogynia.* Nat. Ord. *Primulaceæ.*

The species forming this genus (which is nearly allied to the *Primula*) are elegant little plants from the Alps. They consist of annuals, biennials, and perennials, all perfectly hardy, and well adapted for rock-work or sunny, exposed spots. Propagated by cuttings, or from seeds.

Anemia. From *aneimon*, naked; in reference to the naked inflorescence. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of tropical Ferns. There are numerous species in the West Indies and South America, some of which are of an ornamental character, and much prized in collections. *A. adiantifolia* is one of the most beautiful. The genus is more interesting to the botanist than the florist. Propagated by spores or division.

Anemone. Wind Flower. From *anemos*, the wind; inhabiting exposed places. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

The species are showy flowering plants, valued for their hardy nature, and also because they will flower at any required season, according to the time the roots are kept out of the ground. The roots of the Anemone are solid, flattened masses, closely resembling ginger. They should be planted in the garden as early in the spring as possible, in very rich soil and in partial shade. When the tops are dead, take up and store in a dry, airy place, where they will keep well for two years without injuring their vitality. For indoor cultivation they can be planted at any time in very rich soil in pots or boxes. The prevailing colors are red, white, and blue; flowers double or semi-double. One of the earliest spring flowers is *A. nemorosa*, the white Wind Flower of our woods. *A. pulsatilla* and its varieties, with whitish, violet, and purple flowers, are known in cottage gardens as *Pasque Flowers.*

Angels' Trumpets. A popular name for the flowers of *Brugmansia suaveolens.*

Angelica. The name was given as a record of the *Angelic* virtues that, in 1573, some of the species were supposed to possess, for not only was it a singular remedy against poison, the plague, all kinds of infection and malaria, but it was invaluable against witchcraft and enchantments. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

One of the species of this genus is common in moist places, from Pennsylvania southward. The "intrinsic virtues" that it was once supposed to possess are entirely lost, its great virtue now consisting in its efficacy as a trap for earwigs. If the stem be cut in short pieces and thrown among plants, those pests will completely fill the hollow stems, when their destruction is simple and easy.

Angelica-tree. See *Aralia spinosa.*

Angræcum. From *angurek*, the Malayan name for Air Plants. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

An extensive genus of tropical Orchids, embracing a number of classes that are mere weeds and a few very rare and beautiful species. Among the latter is *A. sesquipedale*, a magnificent plant, a native of Madagascar, where it grows in great profusion, covering trees from top to bottom. The stems are three to four feet high, the foliage about a foot long, dark, shining green; flowers six inches in diameter, ivory white, with a tail from ten to eighteen inches long. Unlike many of this order, the plants flower when quite small. The flowers have a powerful fragrance, particularly at night. Propagated by division.

Anguloa. In honor of *Angulo*, a Spanish naturalist. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of very remarkable terrestrial Orchids, inhabiting the forests of tropical America. They have broad, ribbed leaves, short, leafy scapes, bearing a single large fleshy flower, white, yellow, or spotted with crimson, on a pale yellow ground. There are several of the species under cultivation. They are increased by division. Introduced in 1845.

Animated Oats. See *Avena.*

Anise. See *Pimpinella anisum.*

Anomatheca. From *anomos*, singular, and *theca*, a capsule or seed pod. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

Interesting little bulbous-rooted plants from the Cape of Good Hope. *A. cruenta* is useful for planting in masses, as it produces its blood-colored flowers in great profusion. They may be increased to almost any extent from seed, and the young plants will bloom the same season if sown in a gentle heat about the early part of March, and afterward removed to the open air.

Anopteris. From *ano*, upward, and *pteris*, a Fern; alluding to the resemblance of the leaves.

ANS

Linn. Pentandria-Monogynia. Nat. Ord. *Escalloniaceæ.*

A. glandulosa, the only species introduced into our green-houses, is a very beautiful shrub, remarkable for its large, handsome leaves, and axillary panicles or spikes of small white and pink flowers. Introduced from Van Diemen's Land in 1846. Propagated by cuttings.

Ansellia. In honor of *Mr. Ansell*, the botanical collector who accompanied the ill-fated Niger expedition. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids. *A. Africana* is a very beautiful plant, found growing on oil-palm trees in the island of Fernando Po. It has a tall stem resembling the sugar cane; broad, strap-shaped leaves, and large, drooping panicles of greenish flowers, blotched with purple. The plant flowers in January, and keeps in perfection for several months. Propagated by division. Introduced in 1844.

Anthemis. Chamomile. From *anthemon*, a flower; in reference to the great number of flowers produced. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

The *A. Pyrethrum*, the Pellitory of Spain, is a pretty little perennial, with large white flowers, stained with lilac on the back. It is a suitable plant for rock-work, or boxes in a balcony, as it requires a warm, dry situation. Miller raised this plant in rather a curious way in 1732, finding its seeds among some Malaga raisins to which they had adhered. The root was formerly considered a cure for the toothache.

Anthericum. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A. liliastrum is a very pretty hardy herbaceous plant, has broadish grassy leaves, flower stalk one and a half to two feet high, bearing several large, pure white, sweet-scented flowers, marked on each segment with a green dot. This is commonly called St. Bruno's Lily. *A. vittatum variegatum*, a species of recent introduction, from the Cape of Good Hope, has foliage of a bright grassy green color, beautifully striped and margined with creamy white. In variegation and habit it closely resembles *Pandanus Veitchii*, but is of more rapid growth and easy of cultivation. It has a hardy constitution, not as against cold, but as against the dry atmosphere and gases of the drawing-room, which makes it a valuable plant for the conservatory or for filling in baskets, jardinieres, or rustic designs. The method of propagating this species is both interesting and peculiar. Buds or short shoots are formed on the flower stems, which, put in as cuttings in the ordinary way, root rapidly. It is propagated by seed or division of root. Introduced from the Cape of Good Hope in 1824.

Antholyza. From *anthos*, a flower, and *lyssa*, rage; in reference to the opening of the flower like the mouth of an enraged animal. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A pretty genus of Cape bulbs, like the Anomatheca, but of stronger habit. They should be grown in light, rich earth, and have the protection of a frame, or some other covering, in winter, to exclude frost. Scarlet and orange are the prevailing colors of the flowers. Introduced from the Cape of Good Hope in 1759. Propagated by offsets.

Anthurium. From *anthos*, a flower, and *oura*, a tail; referring to the spadix or floriferous flower-spike. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Orontiaceæ.*

AOT

This singular plant is a native of Brazil. Can only be grown in a strong, moist heat, that of a hot-house being necessary. *A. Scherzerianum*, a native of Guatemala and Costa Rica, is one of the most brilliant, showy, and valuable plants of recent introduction. The singular form and intense coloring of the flower, together with the gracefully-curved foliage and long duration of the flowers, (for several weeks,) render it a most valuable plant. This species is a true epiphyte, and requires to be grown in the same manner as the tropical Orchids.

Antiaris. Upas Tree. From *antja*, its Java name. *Linn. Monœcia-Tetradynamia.* Nat. Ord. *Atrocarpaceæ.*

A. toxicaria is the fabled Upas Tree of Java, which furnishes a deadly poison in the form of a milky juice that exudes when slightly bruised or cut. The exaggerated accounts, that no other plants, or animals, or birds, could live near the tree; that the death penalty was satisfied if the criminal would cut from the tree a branch, or collect some of its juices, were effectually dispelled by Mr. Davidson, author of *Trade and Travel in the Far East*, who, with a number of friends, climbed up into the tree, took lunch, smoked their cigars, and enjoyed a few hours socially in its branches. The Upas has undoubtedly derived its evil reputation chiefly from its having been found growing in the celebrated valley of Java, where, through volcanic agency, there is a constant evolution of carbonic acid gas, fatal to air-breathing animals, and where both man and beast frequently fall victims to this invisible danger. "As if to prove the saying that reality is more strange than fiction, at least in botany, the very nearest plant in affinity to this deadly-poisonous tree is the Cow Tree of South America, whose milky juice is as wholesome as that of an 'Alderney,' and that the Bread Fruit Tree is also closely allied to the *Upas*."

Antirrhinum. Snapdragon. Derived from *anti*, similar, and *rhin*, nose. The flowers of most of the species resemble the snout of some animal. *Linn. Tetradynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

Annual and perennial plants, natives of the middle and south of Europe, and of which one species, *A. majus*, the common Snapdragon, is in every garden. There are many varieties of this species, the finest of which, *A. m. caryophylloides*, has the flowers striped like those of a flaked Carnation. All the species of Snapdragon grow in any soil that is tolerably dry, and they are readily increased by cuttings; for though they produce abundance of seeds, yet the varieties can only be perpetuated with certainty by the former mode of propagation. The beautiful carnation-like variety will, indeed, very seldom produce striped flowers two years in succession from the same root; and thus a person who has purchased a plant with beautifully-striped flowers will generally have the mortification, the second year, of finding it produce nothing but flowers of the common Snapdragon, unless cuttings have been made from the young shoots of the plant, and the old root thrown away. As this plant, in its wild state, is very commonly found growing on the tops of old walls, it may be considered as one of the most ornamental plants for placing in such a situation.

Aotus. From *a*, not, and *ous*, ear; the ear-like appendages to the calyx are wanting. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

APH

A somewhat extensive genus of small evergreen shrubs from New Holland. They are slender plants, with heath-like leaves, arranged in whorls round the stem. The flowers are pea-shaped, bright yellow, on short stalks. *A. gracillima*, a native of West Australia, is a favorite species for the green-house. It is a slender shrub, with copious yellow flowers, which are so thickly set on the stems as to hide the leaves from view. Botanists report several very beautiful species not yet in cultivation. Propagated by seeds. Introduced in 1844.

Aphelandra. From *apheles*, simple, and *aner*, a male; the anthers being one-celled. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Acanthaceæ.*

A small genus of dwarf shrubs from tropical America, allied to the *Justicia*. *A. cristata* is a remarkably handsome hot-house plant, producing large spikes of bright scarlet flowers. *A. aurantiaca* has no less handsome flowers of light orange color, and grows freely in the green-house. They are increased by cuttings.

Aphelexis. From *apheles*, simple, and *exis*, habit. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

Green-house evergreen shrubs from Madagascar, having much resemblance to that class of everlasting flowers known as *Helichrysum*. The genus is composed of five species, all of them having very small leaves, which are closely pressed to the stem like those of club-moss. The flowers are solitary, of a pink color, or small yellow, in clusters of two or three. The garden varieties of *Aphelexis*, and those most commonly met in the green-house, are natives of the Cape, not Madagascar, and are generally placed in the genus *Helipterum*. *A. humilis* is one of the finest green-house plants. When in bloom it remains in perfection for six or seven weeks. Propagated by cuttings, or from seed. Introduced in 1796.

Aphyllanthes. Its stems are like a rush, and bear on their summits a little tuft of flowers; hence the name, from *aphyllos*, leafless, and *anthos*, a flower. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of hardy herbaceous, rush-like perennials, common in Southern Europe. The flower scape is very slender and grass-like, and bears a cluster of small blue flowers, that are of but short duration. This plant is of considerable interest to the botanist, but not of the slightest use to the florist or gardener.

Apios. From *apion*, a pear; in reference to the form of the roots. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A. tuberosa, the only species, is found in the woods and hedges from Massachusetts to the Carolinas. It is an elegant climbing plant allied to the Wistaria. It bears large clusters of brownish-purple, sweet-scented flowers in July. Readily propagated by division of tubers, which are edible. Commonly known as Ground-nut.

Aplectrum. Putty Root. Adam-and-Eve. From *a*, not, and *plektron*, a spur; the flower without spurs. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A. hyemale, the only species, is a hardy bulbous Orchid. The flowers are produced in summer in a raceme a foot or more high, and are of a dingy color, more curious than beautiful. The plant is occasionally met only in the Northern and Eastern States.

Aplopappus. A synonym of *Haplopappus*, a genus of *Compositæ*, of but little interest.

Apocynum. Indian Hemp. From *apo*, from, and *kyon*, a dog; poisonous to dogs. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

AQU

A genus of hardy herbaceous perennials, indigenous throughout the United States. *A. cannabinum* is commonly called Indian Hemp, from the fact of the Indians using the fibrous bark as a substitute for hemp in making their fishing-nets, mats, clothing, and various other articles for which the true Hemp is generally used. *A. androsæmifolium* is termed by English botanists the "Fly Trap of North America," and cultivate it as an object of curiosity. They do not class it as insectiverous further than that its flowers catch and kill the flies, but do not feed upon them. None of the species possesses sufficient beauty to warrant its introduction into the garden.

Apple. *Pyrus Malus.* The history of the Apple shares obscurity with all the fruits, vegetables, and flowers that were in cultivation before any records were kept; consequently speculation must take the place of facts in connection with the early history of this valuable fruit. The first account of this fruit is given in Genesis, which is as unsatisfactory as the effect to humanity is supposed to have been in the eating of it. The general opinion is that the origin of the cultivated Apple is the wild Crab, which is found indigenous in nearly all parts of Europe, as well as in most parts of the United States. Where, when, or how the improvement in this fruit commenced we cannot conjecture. Pliny mentions Apple trees "that will honor the first grafters forever;" and every subsequent mention of this fruit shows marked improvement in the quality, as well as in the quantity produced. To the mother country we are indebted for the parents of the many choice varieties that have rewarded the skill and industry of our horticulturists, a record of which the limits of this work will not warrant. Downing's Fruits and Fruit Trees of America contains all that is known in regard to the Apple, and may be consulted with profit.

Apple of Peru. The fruit of *Nicandra physaloides.*

Apples of Sodom. See *Solanum Carolinense.*

Apricot. *Prunus Armeniaca.* The Apricot is a native of Central Asia, China, Japan, Armenia, and Arabia. In all these countries it is found in its native state, and is also extensively cultivated. The difference in the quality of this fruit in its wild and cultivated states is not so great as in most other fruits, nature having left less work for man to do in order to enjoy it in its highest condition. The fruit or pulp of the wild Apricot, however, does not compare with many of the cultivated varieties that have resulted from selections, yet it is a fair and wholesome fruit. The Apricot is extensively grown in China and Japan, and the natives employ it variously in the arts. The Persians also grow this fruit extensively; so highly do they esteem it that they call it the "Seed of the Sun." The Apricot was introduced into England in 1524 by Woolf, the gardener to Henry VIII. Parkinson (1629) mentions eight varieties. Since then many varieties have been added to the list, which is by no means so extensive as that of other kinds of fruit. The ravages of the Curculio prevent the cultivation of this excellent fruit in some parts of this country; but for that pest it could be produced in the greatest abundance at a very low price.

Aquilegia. Columbine. From *aquila*, an eagle; alluding to the form of the petal. *Linn. Polyandria-Pentagynia.* Nat. Ord. *Ranunculaceæ.*

ARA

Perennial herbaceous plants, growing from one to three feet high, of which several species are very ornamental, especially *A. vulgaris* and its varieties. *A. Canadensis* is the wild Columbine of the United States. *A. chrysantha*, recently discovered in the Rocky Mountains, has canary-colored flowers, contrasting finely with *A. alpina*. They grow in any dry soil. The species are propagated by seeds, which will keep a long time, or by division of the root.

Arabis. Rock Cress. From *Arabia;* probably in reference to the dry situations where many of the species grow. *Linn. Tetradynamia-Siliquosa.* Nat. Ord. *Cruciferæ.*

Herbaceous plants, chiefly annuals and biennials. Natives of many countries, some of which are remarkable for their early flowering. *A. alpina* has white and yellow flowers, which, in its native country, appear in March; and *A. albida* flowers the greater part of the year, commencing in mild winters in January, and producing its large tufts of white blossoms till October. Some of the species and varieties, such as *A. verna, A. alpina nana,* and *A. bellidifolia,* do not grow above three inches high, and are admirable plants for rock-work, or gardens and pots.

Arachis. Peanut. From *a,* privative, and *rachis,* a branch; a branchless plant. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A. hypogæa (underground), the only species, is the *Peanut* of our shops. It is a native of the West Indies and Western Africa, but has become generally cultivated in all warm climates as an article of food, to be eaten like other nuts, or as food for swine. It is also largely cultivated in the East Indies and Cochin China for the oil obtained from the seeds, which is thin and of a straw color, resembling the finer kinds of olive oil. It is said to be of a superior quality, and for table use preferable to the best olive oil. It is free from stearine, and is used by watchmakers and others for delicate machinery. The plant is an annual, of a trailing habit, with yellow, pea-shaped flowers, produced from the axils of the leaves in bunches of five or seven, close to or even under the ground. They should be grown in a light, sandy soil, and the stems covered lightly with earth when in flower, as the seeds are only ripened under ground. The peanut is profitably grown in nearly all of the Southern States.

Aralia. A name of unknown meaning. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Araleaceæ.*

This genus consists of trees, herbs, and shrubs, mostly of an ornamental character, but of no value as flowering plants. The roots of *A. medicaulis,* one of our native species, is largely sold for sarsaparilla. *A. racemosa* is our beautiful *Spikenard,* much esteemed for its medicinal properties. *A. papyrifera,* which assumes a tree form, grows in great quantities in the deep, swampy forests of the island of Formosa. The stems of this species are filled with pith of very fine texture, from which is manufactured the celebrated rice paper of the Chinese, which is chiefly used in making artificial flowers.

Araucaria. From *araucanos,* its name among the people in whose country the *Araucaria imbricata* grows in Chili. *Linn. Dicœcia-Polyandria.* Nat. Ord. *Pinaceæ.*

This genus consists of lofty evergreen trees, none of which will bear the open air of the climate of the Northern States. The most beautiful of the species is *A. excelsa,* from Norfolk Island, where it is known as Norfolk Island Pine.

ARE

It grows to the height of 200 feet. Its symmetrical growth and deep green, finely-cut foliage give it a fern-like appearance. All the species are fine ornaments for the lawn during summer, but require the protection of the green-house during winter. Propagation can be effected by cuttings, though a slow and uncertain process. They grow readily from seed.

Arbor Vitæ. See *Thuja.*

Arctotis. Derived from *arktos,* a bear, and *ous,* an ear; shaggy fruit. *Linn. Syngenesia-Polygamia-Necessaria.* Nat. Ord. *Compositæ.*

This genus consists of annuals, biennials, and green-house perennials. The annuals should be started in the hot-bed early, as they require a long season to develop their showy flowers, which are sulphur and orange. They grow freely in ordinary soil, and keep in bloom until killed by frost. Introduced from the Cape of Good Hope in 1774.

Ardisia. From *ardis,* a spear-head; in reference to the sharp-pointed divisions of the flower. *Linn. Pentandria-Monogynia.* Nat. Ord. *Myrsinaceæ.*

Handsome green-house plants from the East Indies, producing either red or white flowers, and may be grown in sandy peat, with plenty of water through the summer months. *A. crenulata* is admired alike for its white flowers and vermilion berries, being constantly covered with either one or the other. Propagated by seeds in the green-house. Plants usually fruit when one year old. There is also a pretty white-fruited variety.

Areca. Called *areec* in Malabar, when an old tree. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Palmaceæ.*

An extensive genus of lofty, magnificent Palms, natives of the East and West Indies and South America. The most prominent of the species is *A. oleracea,* the Cabbage Palm. This is one of the most beautiful and stately of the Palm tribe, and is called, in some of the tropical islands, the *Royal Palmetto.* The stem of a full-sized tree at the base is seven feet in circumference, and it rises to the enormous height of one hundred and thirty feet. A noted traveler, in his description of this tree, says: "Near the base the trunk is of a brown color, hard, woody, and jointed, with a pith inside like the elder. The upper part of the trunk, from whence the foliage springs, resembles a well-turned, finely-polished baluster, of a lively green color, gently swelling from its pedestal, and diminishing gradually to the top, where it expands into branches, waving like plumes of ostrich feathers. These are decorated with numerous leaflets, some of which are about three feet long, and an inch and a half broad, tapering into a sharp point. The leaflets gradually decrease in size as they approach the extremities of the branches. This lofty, regular group of foliage, impelled by the most gentle gale, and constantly waving in feathery elegance, is an object of beauty which cannot be imagined by an inhabitant of temperate climes, unused to the magnificent vegetation of a tropical sun. Within the leaves, which constitute the summit of the trunk, the portion called the cabbage lies concealed. This substance is white, about two feet long, of cylindrical form, and the thickness of a man's arm. It is composed of longitudinal flakes like ribbons, and so compact as to form a solid, crisp body. When eaten raw, it tastes somewhat like the almond, but more tender and delicious. When cut into slices and boiled, it

is served up with meat as a vegetable dish. To obtain this great delicacy—growing on the very summit of such a stately trunk—the noble tree must be felled to the ground. In the place where the cabbage grew, a species of beetle generally deposits its eggs, from which, in due time, grubs are hatched, that have received the name of Palm-tree Worms. They are about the size of a man's thumb, very fat, and esteemed a great luxury. They are fried with a little butter and salt, and their flavor partakes of all the spices of India."

Arenga. Name not explained. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Palmaceæ.*

A. saccharifera, the only species, is a very useful and interesting Palm, a native of the Asiatic islands. In its native country the fibers attached to the petioles are twisted into ropes, the medulla of the trunk is used as sago, and the saccharine juice forms excellent sugar. It is said that this species alone will supply all the actual needs of the native: food, clothing, and a simple hut made from the leaves, are all supplied from this species, and are all that a native's necessities require.

Arethusa. A classical name, after one of Diana's nymphs. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A. bulbosa is a beautiful species found growing in damp places near the seashore along the Atlantic coast. The flowers are a bright rose-purple, from one to two inches long. One of our best native Orchids.

Argemone. Prickly Poppy. From *argema*, a cataract of the eye; in reference to its medicinal qualities. *Linn. Polyandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

Highly ornamental hardy annuals and perennials from Mexico, with large flowers like those of the Poppy, and of the easiest culture. The plants, spreading widely, require a good deal of room to look handsome. The seed of *A. Mexicana* is the *Fico del Inferno* (Infernal Fig) of the Spaniards; a purgative and powerful narcotic, especially if smoked with tobacco.

Argyreia. Named in reference to the white, silvery texture of the leaves, from *argyreios*, silvery. *Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ.*

A fine genus of strong-growing climbers from the East Indies. They are only adapted for the green-house, and require a long time, with liberal pot room, to bring them into flower. *A. cuneata* is a dwarf-growing species, and free flowering; colors white and purple, resembling the *Ipomœa.* Propagated by cuttings. Introduced in 1820.

Arisæma. Indian Turnip, Dragon Arum. From *aron*, an arum, and *sana*, a standard; in reference to the close affinity to Arum. *Linn. Monœcia-Polyandria.* Nat. Ord. *Aracaceæ.*

A genus of hardy tuberous-rooted perennials. Two of the species, *A. triphyllum*, the Indian Turnip, and *A. dracontium*, the Green Dragon or Dragon Root, are common in moist woods and along streams in most parts of the United States. They bear cultivation well, and make beautiful plants for a shady border. The flowers are popularly known as Jack-in-the-Pulpit. These are succeeded by a cluster of scarlet berries, that make a showy appearance until winter. The biting, acrid properties of this genus are such that the smallest portion chewed, either of leaves or root, produces a feeling as if the tongue were pierced with needles.

Aristida. From *arista*, a beard or awn. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A genus of harsh perennial grasses, common on dry, barren soils throughout the United States. *A. dichotoma* is commonly known as Poverty Grass, as it is a sure indication of poor and barren soil. *A. stricta* is the Southern Wire-grass.

Aristolochia. Birthwort. From *aristos*, best, and *locheia*, parturition, its supposed medicinal character. *Linn. Gynandria-Hexandria.* Nat. Ord. *Aristolochiaceæ.*

A genus of climbing plants of various habitudes, occupying every station, from the open air to the hottest part of the hot-house. Most of them extend their branches a long distance, though some are to be found that are neat and compact in their growth. The flowers of all are extremely curious, generally of some lurid color, and bearing a resemblance to the expanded mouth of a horn. The larger ones have, not inaptly, been compared to the ear of an elephant, while others are distinguished by a long, pendant pouch. The tender species require either the hot-house or green-house, and a few are sufficiently robust to bear exposure to our winters. They grow freely in rich loam and leaf mould. *A. sipho* (Dutchman's Pipe) is a native of the Southern States, and one of the best for covering walls or trellises; under favorable circumstances it will grow twenty feet in a season. The foliage is large, of a deep, rich green. Propagated by seed. Perfectly hardy.

Armeria. Thrift. The Latin name for the Sweet William. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Plumbaginaceæ.*

A genus of highly ornamental, hardy herbaceous plants, of dwarf habit, with flowers of various shades between pink and purple, produced on the majority of the species in great profusion. The common Thrift, *A. vulgaris*, is a well-known substitute for Box as an edging to flower borders. They grow with freedom in almost any soil, and without regard to situation, except that the drip of trees is injurious to most of them. Propagated by division. Introduced from Southern Europe in 1810.

Arnica. From *arnakis*, a lamb's skin; in reference to the texture of the leaves. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A small genus of hardy, dwarf herbaceous plants. Some of the species are common in this country, though not of special interest. *A. montana* is a native of the mountainous districts of Northern and Middle Europe. The tincture of Arnica is prepared from this species; was first introduced by the homœopathists, and soon after came into general use, and is considered invaluable for wounds or bruises.

Aromatic Wintergreen. See *Gaultheria.*

Aronicum. From *arnica*, a lamb's skin; in reference to the softness of the flower-heads. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A small genus of pretty herbaceous perennials, inhabiting Central Europe and Asia. They have flower stalks varying from three inches to two feet high, with terminal heads of bright yellow flowers. *A. Clusii*, a pretty little Alpine species growing from three to five inches high, is well adapted for a border plant or for rock-work. They are increased by division, or from seed.

Arpophyllum. Derivation of name not given. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of handsome Orchids from Mexico and New Grenada. They are of graceful habit, easy of culture, and the flowers last long in perfection. They are increased by division, and should be grown rapidly to produce large bulbs, as small ones do not flower.

Arrow-head. See *Sagittaria.*

Arrow-root. A kind of starch obtained from various plants. Bermuda Arrow-root is obtained from *Maranta arundinacea;* the Brazilian, or Tapioca, from *Manihot utilissima;* the Chinese from *Nelumbium speciosum;* the East Indian from different species of *Curcuma;* the English from the Potato *(Solanum tuberosum);* American from Indian Corn. There are several other kinds, but the name is chiefly associated with that from *Maranta arundinacea,* which see.

Arrow-wood. See *Viburnum.*

Artanthe. Derivation of name not given. *Linn. Diandria-Triandria.* Nat. Ord. *Piperaceæ.*

A small genus belonging to the Pepper family. They are woody plants, with jointed stems, rough leaves, and spikes of flowers opposite the leaves. *A. elongata* furnishes one of the articles known by the Peruvians as Matico, and which is used by them for the same purpose as Cubebs, the produce of a nearly-allied plant; but its chief value is the power it has of staunching blood. The under-surface of the leaf is rough, traversed by a network of projecting veins, and covered with hairs; hence its effect in stopping hemorrhage is probably mechanical, like that of lint, cobweb, and other commonly used appliances. The species are not esteemed valuable as flowering plants.

Artemisia. Wormwood. From *Artemis,* one of the names of Diana. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

This genus contains, among other plants, two well-known shrubs, the Southern-wood, or Old Man, *Artemisia abrotanum,* and the Wormwood, *A. absinthium.* They are both very hardy, and the Southern-wood is valuable for bearing want of air and smoke without injury. Few persons, perhaps, are aware that the leaves of this plant, when held up against a strong light, appear full of transparent dots. These are the vesicles containing the fragrant oil that gives out the scent, and it is by breaking them, that rubbing the leaves between the fingers makes them smell stronger. The Chinese Chrysanthemums are frequently miscalled Artemisias.

Artichoke. *Cynaria scolymus* and *Cynaria hortensis* are the Green and Globe Artichokes of the garden. They are hardy perennials, growing from three to four feet high, with numerous branches. The leaves measure from three to four feet in length, pinnatifid, or cut in deep, horizontal, convex segments, which are covered with an ash-colored down, the whole plant resembling a large Thistle. The portion eaten is the under side of the head, before the flower opens. The whole head is removed and boiled, the leaves laid aside, and the bottom eaten, dipped in butter, with a little pepper and salt. The Artichoke is a supposed native of the South of Europe. The first account of its cultivation was in Italy, in 1473, and from that period, when it was said to be very scarce, it has steadily grown in favor, and its cultivation extended. The Artichoke thrives best in a light, very rich, moist soil. One containing a large proportion of saline properties suits it best. Propagated by seeds or by suckers from established plants. The *Jerusalem Artichoke* is in no sense a true Artichoke, but the tuberous root of a species of Sunflower, *Helianthus tuberosus,* a native of Brazil, from whence it was sent to England about the year 1620. The date of its introduction into this country is unknown. It must have been at an early period, as it has become so perfectly naturalized in many places as to become troublesome. Its cultivation is now strongly recommended on dry soils, liable to excessive droughts. It is said that 1,500 bushels per acre can be produced, upon which swine will thrive finely, the tubers furnishing sufficient water to allay thirst. They also furnish excellent food for sheep. Some agriculturists claim that the tops, cut and properly cured, form an excellent hay, with a yield of five or six tons to the acre.

Artillery Plant. See *Pilea.*

Artocarpus. Bread Fruit. From *artos,* bread, and *carpos,* fruit; the fruit baked resembles bread. *Linn. Monœcia-Monandria.* Nat. Ord. *Artocarpaceæ.*

This natural order presents strange anomalies: the invaluable Bread-fruit Tree of the tropics, the useful Cow-tree of Caraccas, and the virulent poison of the Upas Tree of Java, side by side. The Bread-fruit, originally found in the southeastern parts of Asia and the islands of the Pacific, though now introduced into the West Indies and South America, is one of the most interesting as well as singular productions of the vegetable kingdom. The Bread-fruit is a beautiful as well as a useful tree. The trunk rises to the height of about forty feet, and, in a full-grown tree, is from twelve to fifteen inches in diameter; the branches come out in a horizontal manner, the lower ones about ten feet from the ground, and they become shorter and shorter until they reach the top, giving the tree an appearance of perfect symmetry. The leaves are of a lively green, divided into seven or nine lobes, from eighteen inches to two feet long. The fruit is about nine inches long, heart-shaped, of a greenish color, and marked with hexagonal warts in clusters. The pulp is white, partly farinaceous and partly fibrous; but when quite ripe it becomes yellow and juicy. The Bread-fruit furnishes the chief sustenance of the inhabitants of the Society and South Sea Islands, and is used to a considerable extent in the West Indies. It is usually cut into pieces, and roasted or baked in ovens on the ground.

Arum. From *aron;* supposed to be an ancient Egyptian word. *Linn. Monœcia-Polyandria.* Nat. Ord. *Araceæ.*

There are several interesting species contained in this genus which may be accounted pretty additions to the collections of the hot-house and green-house, though the flowers possess a disagreeable odor. In contrast with the other species is *A. Palestinum,* that has flowers of deep crimson, with a delicious fragrance not unlike the Violet. In shape it resembles *Calla Æthiopica;* in fact, when it was introduced, in 1876, into the United States, it was under the name of "Crimson Calla." They are easily cultivated in loam, and should have a liberal supply of water. Numerous offsets are usually produced, by which the species are extended. *A. dracunculus,* the Dragon Arum, deserves a place in the flower garden for its large, very remarkable flowers. This variety requires the same treatment as the Gladiolus. The roots of all this natural order, when green, contain a milky fluid, which is exceedingly acrimonious, exciting a painful sensation of burning heat in the

tongue and mouth. When cut in slices and applied to the skin, it will very quickly produce a blister. This same active principle is not confined to the roots of the various genera and species, but is found in the leaves as well. A piece of the Calla leaf, not larger than a pin's head, if taken into the mouth, will produce violent and painful burnings. By drying, these roots lose all their poisonous properties, and some of the species yield an excellent quality of Arrow-root.

Arundinaria. An alteration of the word *Arundo*, to which this genus may be compared, in reference to its large size. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A genus of grasses of a shrubby or arborescent nature, with strong-jointed stems, resembling those of the Bamboo cane. They are mostly from the warmer parts of the globe, and in some instances attain a great size. *A. falcata* is one of the hardiest kinds, and an ornamental plant for the sub-tropical garden. This species will endure the winter without protection, from Washington southward. *A. Schomburgkii*, a native of Guiana, is an important species. The canes grow sixteen feet high, with a diameter at the base of from twelve to eighteen inches. It is this plant that chiefly furnishes the native Indians with the tubes from which they blow their poisonous arrows, which act with such fatal effect on their victims.

Arundo. Reed. A word of doubtful derivation, perhaps from the Latin word *arundo*, a reed. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A. Donax is a splendid Bamboo-looking reed, rather tender in severe winters, but which, if the season be favorable, will grow, in rich soil kept moist, to the height of ten or twelve feet in one year, producing a fine oriental appearance when standing singly on a lawn or near water. This variety is a native of Southern Europe, introduced in 1648, and for many years has been an inmate of our flower gardens. *A. Donax variegata*, a variety with leaves beautifully striped in different colors, similar to those of the common Ribbon-grass of our gardens, is one of the most beautiful plants for the sub-tropical garden. It requires, however, the protection of the green-house during winter in our Northern States. Propagated by division of roots. Will succeed in ordinary garden soil.

Asarum. Wild Ginger. From *a*, privative, and *saron*, feminine; the application of the term unexplained. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Aristolochiaceæ.*

A genus of rather curious hardy herbaceous perennials, common in most parts of the United States, usually in rich, moist woods. They are highly esteemed for their medicinal properties. *A. Canadense* is the Canada Snake-root or Wild Ginger. It is recognized by its simple pair of broad, kidney-shaped leaves, and a single large, brownish-purple flower. The roots are pungent and aromatic.

Asclepias. Milkweed. The Greek name of the *Æsculapius* of the Latins. *Linn. Pentandria-Monogynia.* Nat. Ord. *Asclepiadaceæ.*

An extensive genus of tall-growing plants, mostly of a hardy herbaceous character, remarkable for their curious flowers and the silky substance which fills the seed-pod. The most ornamental species is *A. tuberosa*, which has fine orange-colored flowers, and is somewhat difficult to cultivate. It thrives, however, in sandy loam kept rather dry than otherwise, and seldom disturbed by removal. It is increased by

division. This species is common in all the Middle States. The genus is truly American.

Ash. See *Fraxinus.*

Ash-leaved Maple. See *Negundo.*

Asimina. Papaw. Named from *Asiminier* of the French colonists. *Linn. Polyandria-Polygynia.* Nat. Ord. *Anonaceæ.*

A. triloba, the only species, is a low-growing tree or shrub, common in the Western and Southern States, where it is popularly known as Papaw. The fruit is from three to four inches long, yellowish, and when fully ripe is by many highly esteemed.

Asparagus. From *a*, intensive, and *sparasso*, to tear; in reference to the strong prickles of some species. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Of this extensive genus of hardy herbaceous and green-house plants, *A. officinalis*, the garden Asparagus, is the only species of particular interest. The common Asparagus is a native of Great Britain, Russia, and Poland. In many other parts of Europe it is found growing wild, but is probably an escape in many localities, and is perfectly naturalized, as it is sparingly on our own coasts. The Asparagus is one of the oldest as well as one of the most delicious of our garden vegetables. It was cultivated in the time of Cato the Elder, 200 years B.C.; and Pliny mentions a sort that grew in his time near Ravenna, of which three heads would weigh a pound. From these accounts it would appear that there is nothing new under the sun in the line of Asparagus. As many of our best gardeners contend, adaptation of soil, together with thorough cultivation, alone explains the difference in this vegetable, as offered in our markets or seen in our gardens.

Aspasia. From *aspazomai*, I embrace; the column embraced by the labellum. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids from Central and South America. One of the more important species, *A. epidendroides*, has yellow and brown sepals, the petals light purple, the lip white, with purple in the center. The species should be grown in baskets, or on blocks of wood or cork, with plenty of moss. They do not require a high temperature, but need plenty of air. Increased by division. Introduced in 1833.

Aspen. See *Populus tremula.*

Asperula. The diminutive of *asper*, rough; in reference to the rough leaves. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Galiaceæ.*

Pretty, dwarf, hardy plants, well adapted for shaded situations among trees, chiefly natives of the European Continent. *A. odorata*, the common Woodruff, is esteemed for its delightful scent. The plant, when wilted, has the odor of new-mown hay.

Asphodelus. Asphodel. From *a*, privative, and *sphallo*, to supplant; the stately flowers not easily surpassed. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Showy plants, suitable for the open border, with white or yellow flowers. They may be grown in any soil, and are readily increased by separation of the roots. Most varieties are from the South of Europe, have long been in cultivation in our gardens, and are perfectly hardy.

Aspidistra. From *aspidiscon*, a little round shield; the form of the flower. *Linn. Octandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus found in China and Japan, remarkable for producing their flowers under the surface of the earth. They are useful house plants. The foliage of *A. variegata* (green with broad stripes of white) contrasts finely with ornamental foliaged plants. Propagated by suckers. For the production of well-marked plants, the pots in which they are grown should be small, and the soil liberally mixed with sand. Introduced in 1835.

Aspidium. Shield Fern, Wood Fern. From *aspidion*, a little buckler; the shape of the indusium. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of hardy and green-house Ferns. Many of the species are common in moist, shady places throughout the United States. The green-house varieties are mostly from the West Indies. All the species are of easy culture. Many of them are deservedly popular in the fern-house or shady border.

Asplenium. Spleenwort. From *a*, privative, and *splen*, spleen; referring to its supposed medicinal properties. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

This genus, as established by Linnæus, was a very extensive one, and the species exceedingly varied. So much confusion existed in regard to it, that modern botanists have divided and sub-divided it; yet it contains a large number of hardy and tropical species, many of which are exceedingly beautiful and interesting, and are commonly found in our green-houses. Some of the species have the very singular property of bearing little buds on their surface, from which young plants are formed. It is not an uncommon thing to see fifteen or twenty of these young plants, all perfectly developed, from one to two inches high, on a single frond. This species is popularly known as a bulb-bearing Fern. Several of the species are indigenous throughout the United States, and there is scarcely a country in which some of the species may not be found.

Aster. From *aster*, a star. *Linn. Syngenesia-Superflua.* Nat. Ord. *Compositæ.*

There are upward of one hundred and fifty species included in this genus, chiefly hardy herbaceous plants, useful for ornamenting the flower borders in the autumn; generally attaining a height of from two to four feet, and producing white, red or blue flowers. They are easily increased by separating the old stools. The well-known German and China Asters are now classed under Callistephus.

Astilbe. From *a*, privative, and *stilbe*, brightness; flowers not very striking. *Linn. Decandria-Digynia.* Nat. Ord. *Saxifragaceæ.*

A. barbata, commonly called *A. Japonica*, *Spiræa Japonica*, and *Holeia Japonica*, is a native of Japan, and a perfectly hardy herbaceous plant. The dark green cut leaves form a handsome tuft, from which arise numerous crowded panicles of feathery white flowers. Excellent for forcing in pots, and fine for cutting. There is a variety with variegated foliage, green and yellow, not so vigorous in habit, but in all other respects similar. Propagated by division of roots.

Astragalus. Milk Vetch. The ancient Greek name for some leguminous plant. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

An extensive genus of hardy annuals, perennials, and deciduous trees and shrubs. Many of the species are beautiful plants for the flower garden. They are vigorous growers, and succeed in a well-drained, sandy soil. The genus is widely distributed, there being scarcely a country where it is not indigenous. The flowers are pea-shaped, and mostly yellow or purple. Several of our native species produce a fruit resembling green plums, that are edible. On the prairies they are called Ground Plums. *A. mollissimus*, popularly known as "Loco," or "Crazy Weed," is the notorious cattle-poisoning weed of Colorado and California. Cattle and horses eating it show many of the symptoms of drunkenness, and under certain circumstances the results are fatal. The gum-like substance called Tragacanth is the produce of several species growing in Persia, Asia Minor, and Kurdistan. The gum exudes naturally from the bark in the same way that gum exudes from the bark of Cherry or Plum trees. While many of the species are useful or ornamental, by far the larger number are troublesome weeds.

Astrocaryum. From *astron*, a star, and *karyon*, a nut; referring to the distribution of the fruit. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A small genus of Palms allied to *Cocos*, chiefly natives of the Upper Amazon. They have large pinnate leaves, and are armed with spines, sometimes a foot long, and exceedingly sharp. The fruit of some of the species furnishes food for cattle and swine. The young leaves of *A. vulgare* yield a fine thread, from which the best hammocks are woven.

Ataccia. Malay name. *Linn. Hexandria-Monogynia.* Nat. Ord. *Taccaceæ.*

A division of the genus *Tacca*. "There are few more remarkable-looking plants than *A. cristata*, sometimes met in the gardens under the incorrect name of *Tacca integrifolia*. It has a short, conical, underground caudex, or rhizome, and produces from this caudex three or four large, oblong, acuminate, purplish-green stalked leaves. The scape is about as long as the leaves, erect, stout, angled, dark purple, terminated by a large four-leaved involucre, of which the two outer leaflets are dark purple, and the two inner much larger, placed side by side, green with a deep purple base and stalk." The species are remarkable for their curious structure, but are of no value as flowering plants, or for economic purposes.

Atamasco Lily. See *Zephyranthes.*

Athyrium. A small genus of Ferns, until recently included in *Asplenium*. *A. Goringianum pictum* is a beautiful half-hardy deciduous variety from Japan.

Atriplex. Orache, Mountain Spinach. From *ater*, black, and *plexus*, woven together; on account of the dark color and habit of some of the species. *Linn. Polygamia-Monœcia.* Nat. Ord. *Chenopodiaceæ.*

A. hortensis, the only species of interest, is a tall-growing, hardy plant, annual, known in our gardens as *Orache*. It is but little grown in this country, but very popular in France. It is a native of Tartary, introduced into France in 1548. It grows freely with ordinary garden culture. Seeds are sown in both spring and fall to secure a succession.

Attalea. From *attalus*, magnificent; in reference to the beauty of these Palms. *Linn. Monœcia-Polyandria.* Nat. Ord. *Palmaceæ.*

A genus of very beautiful Palms allied to *Cocos*. With one or two exceptions, they are natives of Brazil. *A. funifera* yields a black fiber resembling whalebone, an article of con-

siderable commercial value as a material for making brooms and brushes. It is popularly known as Piassaba Palm. The nuts of this species are very hard, about four inches long, finely mottled, dark and light brown, and are highly esteemed for turning into knobs, umbrella handles, and various other purposes. *A. Cohune* furnishes Cohoun nuts, from which is extracted Cohoun oil, used for burning, for which purpose it is superior to cocoanut oil. The species are too large for green-house cultivation.

Aubrietia. Named after *M. Aubriet*, a French botanical draughtsman. *Linn. Tetradynamia-Siliculosa.* Nat. Ord. *Cruciferæ.*

A genus of pretty little plants, generally with purple flowers, about three inches high, which flower in March, and are admirably adapted for pots or miniature rock-work. They are readily propagated by division. Natives of the South of Europe. Introduced in 1710.

Aucuba. The name of the shrub in Japan. *Linn. Monœcia-Tetrandria.* Nat. Ord. *Cornaceæ.*

A genus of hardy evergreen shrubs from Japan, useful, and highly prized for their vigorous habit, rapid growth, and capability of enduring, and even thriving in, the atmosphere of cities. The conspicuously marked foliage of *A. Japonica variegata*, which is green and yellow, admirably adapts it for the shrubbery border, or as a single plant upon the lawn. This variety is not usually hardy north of Washington. Propagated by cuttings, which root freely in sand. Introduced in 1783.

Auricula. See *Primula.*

Avena. Oat. A name of obscure origin. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A genus of grasses, in point of beauty uninteresting. *A. sativa*, the common Oat, is the best known, and invaluable in agricultural economy. There are several species of Oats, and a vast number of varieties. The nativity of the Oat is accredited to Mesopotamia. It is, however, a matter of conjecture. The quality and appearance of the Oat vary greatly when grown on different soils and in different climates. The justly celebrated Norway Oat loses its distinctive character when grown in the warm, dry climate of the Middle or New England States, and seed has consequently to be procured from colder countries, in order to keep the crop up to the high standard claimed for it. The Naked or Hulless Oat is *A. nuda*, found growing wild in many parts of Europe, and considered merely a degeneration of the common Oat. A very fine variety of this species has been introduced from China, but its merits as a farm crop have not been fully tested. *A. sterilis*, a native of the

South of Europe, is the Animated Oat of the gardens. The "animation" is produced by the contraction and expansion of the awns, which cause the seed to crawl a short distance. Moisture from dews is sufficient to produce this slight motion.

Avens. See *Geum.*

Azalea. From *azeleos*, dry; in reference to the habitation of the plant. *Linn. Pentandria-Monogynia.* Nat. Ord. *Ericaceæ.*

Beautiful flowering plants, natives of North America, Turkey, and China. The American or Hardy Azaleas, *A. calendulacea*, *nudiflora*, and *viscosa*, with hosts of garden varieties bred from them, are inhabitants of all our best shrubberies, and have been so wonderfully improved by seedling culture as to throw into the shade the original species; there can now be selected twenty or thirty varieties better than the very best of the original species. Every year, too, adds to the diversity of sorts and to the size of the flowers, which is one of the characteristics of the improved kinds. In many places they thrive in the common soil of the garden, but, in general, they require leaf mould to be dug in with the natural soil; and where there is to be any quantity grown, or a nursery of them made, beds of leaf mould, or compounds of the greatest part of this, must be made up. They are raised from seed sown in beds in the open air, but, from its extreme diminutiveness, many prefer sowing in pans and wide-mouthed pots. When they are large enough, they should be planted out in beds six inches apart. The second year every alternate plant may be taken out and planted elsewhere, to make room; and as they increase in size they should have more room. They are propagated chiefly by grafting and layers, but cuttings of the last year's wood will root readily in sand. *A. Pontica* is a native of Turkey. *A. Indica* (the Chinese Azalea) and its varieties are those we meet with in the green-house. The florists' catalogues abound with rare sorts, the results of careful and skillful cross-fertilization. We are largely indebted for our finer sorts to the nurserymen at Ghent, Belgium. They are increased easily in spring by cuttings of the half-ripened young shoots.

Azara. Named after *J. N. Azara*, a Spanish promoter of botany. *Linn. Polyandria-Monogynia.* Nat. Ord. *Flacourtiaceæ.*

A genus of evergreen shrubs, natives of Chili. *A. Gilliesii*, is the most desirable species. Its leaves are evergreen, somewhat resembling the Holly; flowers yellow, produced in axillary clusters. Propagated by cuttings. Introduced in 1844.

B.

Babiana. From *babianer*, the Dutch for baboon; in reference to the bulbs being eaten by baboons. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A genus of Cape plants, with solid bulbs or corms, which are eaten by the Hottentots, and which, when roasted, are said to resemble chestnuts. All the species have showy flowers, of various colors, blue predominating. Some of the varieties are finely variegated. They succeed in very sandy loam, and may be grown either in pots for ornamenting the green-house, or planted in a cold frame, where, if protected from frost in winter, they may be allowed to remain altogether. They increase rapidly by offsets. Introduced from the Cape of Good Hope in 1757.

Babingtonia. Named in compliment to Charles Babington, of Cambridge, Eng., a distinguished botanist. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myrtaceæ.*

B. camphorosma, the only species of import-

ance in this genus, is a graceful green-house shrub from New Holland. It is easy of cultivation, and produces flowers freely during the summer months, in terminal clusters, color white or pinkish. The branches have a drooping habit, giving the plant a graceful outline. Propagated by cuttings. Introduced in 1842.

Baby's Breath. See *Muscari.*

Baccharis. Groundsel-Tree. From *Bacchus*, the god of wine; referring to the spicy odor of the roots. The ancients sometimes boiled down their wines, and mixed them with such spices. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

This genus consists of upward of 200 species, all South American except three, two of which are found from Massachusetts southward, and the third in California. They are tall-growing shrubs, and distinguished from their allies by having the male flowers on one plant and the females on another. They are quite ornamental shrubs, and some of the species are strongly recommended for the green-house. There is a singular and remarkable fact in relation to one of the species, *B. Douglassi*, which is found in California and in Chili, without being found in any intervening place. The medicinal properties of some of the South American species are highly esteemed for fevers and rheumatism.

Balantium. A name proposed for a genus of Ferns, now considered synonymous with *Dicksonia.*

Bald Cypress. See *Taxodium.*

Ballota. Fetid Horehound. From *ballo*, to reject; in allusion to its offensive odor. *Linn. Didynamia-Monogynia.* Nat. Ord. *Lamiaceæ.*

A small genus of mere weeds, occasionally met with in the Eastern States, having found their way from Europe, where they are natives.

Balloon Vine. See *Cardiospermum.*

Balm. See *Melissa.*

Balm of Gilead. See *Populus.*

Balmony. One of the popular names of *Chelone.*

Balsam Apple and Balsam Pear. See *Momordica.*

Balsam Fir. See *Abies.*

Balsamina. Balsam. *Impatiens Balsamina.* From *impatiens*, referring to the elasticity of the valves of the seed-pods, which discharge the seeds when ripe or when touched. *Linn. Pentandria-Monogynia.* Nat. Ord. *Balsaminaceæ.*

The garden Balsam, of which numerous handsome varieties are grown, is *B. hortensis.* This is one of the most beautiful of popular annuals, forming a showy cone of finely-variegated, Carnation-like flowers. The prevailing colors of the petals are red and white, the former extending to every shade of purple, crimson, scarlet, rose, lilac, and carnation or flesh-color; but some of the most superb sorts are elegantly spotted with white. The spotted varieties form a class by themselves, and are justly regarded as among the most brilliant ornaments of the garden. There are the crimson, scarlet, rose, purple, and violet-spotted. Another class is striped, after the manner of Carnations, with purple, crimson, rose, scarlet on pure white grounds, some with one color, others with two or more colors, and some are curiously mottled and striped. The most improved varieties are very double, and styled Camellia-flowered by the French. Some of the flowers are almost as perfect and as double as those of the Camellia, and nearly as regular in shape. The Germans call them Rose-flowered, as many of them approach the perfection of that flower in shape and fullness. There is a class of Dwarf Balsams that do not grow over a foot high, but very full and bushy in habit. They do not produce flowers so double as the Camellia or Rose-flowered varieties, but are desirable for the garden. They should not be planted with the tall varieties, which attain the height of two or three feet, when properly cultivated. The only way to propagate the Balsam is from seed, which do not always produce kinds exactly the same as the parent, but approach very near, when great care has been taken to keep the different varieties by themselves, as is now practiced by those who make a business of raising the seed. Careful growers of Balsams, who wish to raise prize flowers, never use seed less than three years old; and they are particular in saving it from the most double and handsomest flowers, the best being those which have their colors distinctly marked, like a Carnation. Introduced from the East Indies in 1596.

Balsam of Copaiva. See *Copaifera.*

Balsam of Peru. See *Myrospermum.*

Bamboo Cane. See *Bambusa.*

Bambusa. Bamboo Cane. From *bambos*, its Indian name. *Linn. Hexandria-Monogynia.* Nat. Ord. *Graminaceæ.*

A genus of gigantic reeds, common throughout Southern China and Japan. *B. arundinacea* is the species of greatest importance. When growing it has the appearance of an immense sheaf of wheat standing on end. It grows in large tufts or clumps, some of them upward of sixty feet in height, and the quantity of canes which they yield is simply enormous. The cane is porous in the center and partly hollow. Externally the epidermis is composed of a hard wood, into which silex enters so largely that it will strike fire with a steel like a piece of flint. Although this plant grows spontaneously and most profusely in nearly all the immense southern districts of the Chinese Empire, yet the Chinese give the cultivation of this reed great care and attention. They have treatises and whole volumes solely on this subject, laying down rules derived from experience, and showing the proper soils, the best kinds of water, and the seasons for planting and transplanting the useful production. The variety of purposes to which the Bamboo is applied is almost endless. The Chinese use it, in one way or other, for nearly everything they require. The sails of their ships, as well as their masts and rigging, consist chiefly of Bamboo, manufactured in different ways. Almost every article of furniture in their houses, including mats, screens, chairs, tables, bedsteads, and bedding, are made of the same material; and in some sections entire dwellings are constructed of Bamboo. Fine paper is made from the fiber of this plant. In short, scarcely anything is to be found in China, either upon land or water, into the composition of which Bamboo does not enter. The same extensive use is also made of this reed in Japan, Java, Sumatra, Siam, and other Eastern countries.

Banana and Plantain. See *Musa.*

Baneberry. See *Actæa.*

Baobab Tree. See *Adansonia.*

Baptisia. From *bapto*, to dye; some of the species possessing dyeing properties. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

This genus of native plants (commonly called False Indigo) are rather pretty for the border.

Flowers are white, blue, or yellow. They grow in any good garden soil, and are increased by division.

Barbarea. Winter Cress. So named on account of its having been formerly called the Herb of St. Barbara. *Linn. Tetradynamiæ.* Nat. Ord. *Brassicaceæ.*

B. vulgaris is a hardy herbaceous plant, in early days esteemed as a salad. It closely resembles the common Water Cress, but grows on dry soils. Its use is now discarded. It is a native of Europe, and has become naturalized in some parts of this country.

Barberry. See *Berberis.*

Barkeria. After the late *Mr. Barker*, of Birmingham, Eng., an ardent cultivator of Orchids. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of very beautiful epiphytal Orchids, natives of Mexico and Central America. They closely resemble the well-known genus *Epidendrum. B. spectabilis*, called in Guatemala Flor de Isabel, is the finest species. It is one of the votive offerings of the Catholics in that country. The plants should be grown in baskets of moss in a warm house. They are increased by division. Introduced in 1843.

Barleria. After the *Rev. J. Barrelier*, of Paris. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Acanthaceæ.*

A large genus of herbs and shrubs, natives of the tropical regions of both the Old and the New Worlds. The flowers are purple, yellow, orange, or white, produced in axillary or terminal spikes or heads. But few of the species have been introduced into the garden or green-house. *B. cristata*, a native of the East Indies, is a pretty little hot-house evergreen plant, bearing its purplish-lilac flowers in great profusion in summer, making it a desirable border plant. It is propagated by cuttings. Introduced in 1796.

Barley. The common name for *Hordeum.*

A genus of grain-bearing grasses, the most important of the species being *H. vulgare*, our common Spring Barley, a grain that has been the longest in cultivation, and is more generally used than any other. The Egyptians have a tradition that Barley was the first grain made use of by man, and trace its introduction to their goddess Isis. Pliny, in his Natural History, speaks of its great antiquity, but gives no account of its origin, which is as little known as that of Wheat. Of the kinds under cultivation, *H. vulgare* is the common four-rowed, *H. distichon* the two-rowed, and *H. hexastichon* the Winter Barley, which has six rows of grain, each row terminating in a long beard. This is the species most generally cultivated in this country.

Barnardia. Named in honor of *E. Barnard, F.L.S. Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of half-hardy bulbs from China and Japan. The flowers are pale blue, similar to the *Scilla*, and from the resemblance the finest species has been called *B. scilloides.* They require to be grown in a frame. Propagated by offsets. Introduced in 1819.

Barnyard Grass. The common name for *Panicum Crus-galli.*

Bartonia. Named after *Dr. Barton*, one of our distinguished botanists. *Linn. Icosandria-Monogynia.* Nat. Ord. *Loasaceæ.*

B. aurea, a native of California, is a splendid annual, with golden yellow flowers, which have quite a metallic luster when the sun shines

upon them. The seed-pod is curiously twisted. Like all the Californian annuals, it is very apt to die off if the roots become at all withered by drought, or if the collar of the plant be exposed to the full heat of the sun; and thus it does best when grown in masses, so that the ground may be quite covered with its leaves. It succeeds best in a moist situation. Introduced in 1834.

Basella. Malabar Nightshade. Its Malabar name. *Linn. Pentandria-Trigynia.* Nat. Ord. *Basellaceæ.*

A genus of climbing plants, mostly biennial. *B. alba* and *B. cordifolia* are grown in the East Indies as pot-herbs, and are used as a substitute for Spinach. Some of them are also grown in France, to furnish the Paris market with summer Spinach, and they are grown for the same purpose in China. *B. rubra*, a variety of *B. cordifolia*, yields a rich purple dye. Some of the species have tuberous roots. *B. alba* is suitable for a suspended pot or basket, being quite pretty when in bloom. *B. lucida*, when in fruit, is a very interesting plant. Propagated by division and by seed.

Basil. See *Ocymum.*

Basil Thyme. Common name for *Calamintha Nepeta.*

Bassia. Butter Tree. Named after *M. Bassi*, Curator of the Botanic Garden at Boulogne. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Sapotaceæ.*

Tall trees, natives of the hottest parts of the East Indies and Africa; the leaves are alternate, produced in terminal tufts. The trees are of considerable importance in their native countries. *B. butryacea* yields a thick, oil-like butter from its fruit. It makes good soap, and is adapted for burning. From the juice of the flowers a kind of sugar is prepared. The fruit of the Illupie Tree, *B. longifolia*, yields oil for lamps and various other purposes; it is also used for food. *B. Parkii* is the Shea Tree, or Butter Tree, mentioned by Mungo Park in his travels. Some of the species furnish a very valuable timber for the mechanic arts.

Basswood. See *Tilia.*

Bastard Pennyroyal. See *Trichostema dichotomum.*

Batatis. Its Indian name. *Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ.*

A somewhat extensive genus of tuberous-rooted climbing plants, tender or half-hardy. Some of the species are handsome green-house climbers, with large, purple, snowy flowers. As the flowers fade quickly and have no commercial value, the species are rarely cultivated. The most interesting species is *B. edulis*, the well-known Sweet Potato, for description of which see *Potato.* The several species are natives of Mexico, South America, and the East Indies.

Batemannia. In compliment to *James Bateman*, a celebrated English collector and cultivator of *Orchids*, and author of the "Orchidaceæ of Mexico and Guatemala." *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids, most of which have small, inconspicuous flowers. *Batemannia Burtii* is a very rare and showy plant, with flowers three inches in diameter, of a reddish brown, with yellow spots, lip white and dark purple. They require to be grown in a house with moderate heat, and to be watered with great caution. Introduced in 1839.

Bayberry. See *Myrica.*

BEA

Beach Pea. Common name of *Lathyrus maritimus*. A species growing plentifully in New Jersey and northward.

Bean. *Phaseolus.* The varieties of our common Garden or Bush Bean have their origin in *P. vulgaris*, which is supposed to be a native of the East Indies, though there are none of the species found wild that in any way resembles the varieties under cultivation. The earliest notice that we have of the Kidney Bean is that given by Pliny, who calls them *Phaseoli*, and says the pod is to be eaten with the seed. "According to Diodorus Siculus, the Egyptians were the first to cultivate it, and to make it an article of common diet, yet they conceived religious notions concerning it which made them at length refrain from eating it. Their priests dared not either touch it or look at it. Pythagoras, who was educated among the Egyptians, derived from them their veneration for the bean, and forbade his disciples to eat it. He taught that it was created at the same time and of the same elements as man; that it was animated and had a soul, which, like the human soul, suffered the vicissitudes of transmigration. Aristotle explains the prohibition of Pythagoras symbolically. He says, that beans being the ordinary means of voting on public matters, the white bean meaning an affirmative, and the black a negative, therefore Pythagoras meant to forbid his disciples to meddle with political government. The Roman priests affirmed that the bean blossom contained infernal letters, referring to the dark stains on the wings, and it is probable that all the superstitions on the subject sprang from the fruit."—*Am. Ency.* This species was first cultivated in England in 1509, having been introduced from the Netherlands. Many varieties were known to Gerarde in 1590. The running or Pole Beans are of the species *P. multiflorus*, introduced from South America in 1663. (See *Phaseolus.*) The English Bean, so called by our seedsmen, and commonly known as Broad Windsor, is *Vicia faba*, a genus that has been under cultivation as long as we have any records of gardening. It is supposed to have originated in Egypt, from the fact that the early Greek writers mention receiving it thence. Of this class there are many varieties, none of which succeed well with us.

Bear Grass. See *Yucca.*

Beard-tongue. A popular name of the genus *Pentstemon.*

Beatonia. Named in honor of *Donald Beaton*, a celebrated Scotch gardener and writer. *Linn. Monadelphia-Triandria.* Nat. Ord. *Iridaceæ.*

A small genus of Mexican bulbs, allied to the *Tigridia*, and requiring the same treatment. Flowers purple, growing in pairs or singly on a stem about a foot high. Introduced in 1841. Propagated by offsets.

Beaufortia. Named after Mary, Duchess of Beaufort. *Linn. Polyadelphia-Polyandria.* Nat. Ord. *Myrtaceæ.*

A small genus of very desirable green-house plants from New Holland. They should be grown in loam and sand in about equal quantities, and in a cool part of the green-house will flower splendidly. The flowers are scarlet, pink, or red. Propagated by cuttings of the half-ripened wood, covered with a small glass without the aid of bottom heat.

Beaumontia. Named after *Mrs. Beaumont*, of Bretton Hall, England. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

BEL

This genus of green-house twiners has but few species, all natives of the East Indies. *B. grandiflora* is remarkable for its handsome flowers which are pure white, borne in terminal or axillary corymbs. The plant is difficult of propagation, which is effected by cuttings. Great age is required to bring it into flower. When a large plant is obtained and grown under favorable circumstances, it has but few rivals.

Beaver Poison. A common name applied to *Cicuta maculata.*

Bee Balm. See *Monarda.*

Beech. See *Fagus.*

Beech-drops. A common name of the genus *Epiphegus.* A parasite that grows upon the roots of Beech trees.

Beet. See *Beta.*

Bedstraw. One of the common names of the genus *Galium.*

Beefwood. See *Casuarina.*

Beggar's Lice. A common name of *Cynoglossum Morisoni.*

Beggar's Ticks. The common name of a very disagreeable weed, *Bidens chrysanthemoides.* It has received this distinctive name because the fruit adheres to anything with which it comes in contact.

Begonia. Named in honor of *M. Begon*, a French patron of botany. *Linn. Monœcia-Polyandria.* Nat. Ord. *Begoniaceæ.*

All the species of Begonia are interesting and beautiful winter ornaments of the hot-house or green-house, of the simplest culture in any rich soil if allowed an abundant supply of water. Cuttings may be struck without trouble. *B. Rex*, the type of the large-leaved sorts, and the most ornamental of the species, is best propagated by cutting the leaves in sections, each being so cut as to form a junction of the ribs at the lower end of the cutting. These should be laid in a damp, warm place, or on the propagating bench with good bottom heat; or a leaf, or a portion of one, may be laid flat in any shady place in the house. There has lately been introduced several tuberous-rooted species and varieties. They have large, showy flowers, and succeed well in a moist, shady border. The tubers should be kept warm and dry during the winter. They are readily propagated by cuttings, seeds, or division of tubers.

Belladonna Lily. See *Amaryllis Belladonna.*

Bell Flower. See *Campanula.*

Bellis. The Daisy. From *bellus*, pretty; referring to the flowers. *Linn. Syngenesia-Polygamia-Superflua.* Nat. Ord. *Compositæ.*

Well-known perennials, of which *B. perennis*, the common Daisy, has been in cultivation in British and Continental gardens from time immemorial. The most beautiful varieties are the large double, the large quilled, and the *Hen-and-Chickens;* but there are many others. In Germany numerous curious varieties have been raised by saving the seed of the handsomest kinds. Each sort is much improved by being taken up, divided, and replanted three or four times every season. They are all admirable plants for making edgings to borders, and they are well suited for growing in pots, though at present they are almost neglected. They thrive best in a loamy soil, richly manured, which should be dug over and well broken before planting, and they will bear transplanting even when in flower, provided they are taken up with a portion of soil attached. These pretty plants are seldom seen in our gardens in as great abundance as they deserve to

be, which is owing, no doubt, to their being very impatient of our hot summers. They should therefore be grown in a shady and rather cool border.

Bellwort. See *Uvularia.*

Bent Grass. See *Agrostis.*

Benjamin Bush. A popular name of *Lindera Benzoin*, which is also called *Spice Bush.*

Benthamia. Named after *Mr. Bentham*, a distinguished English botanist. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cornaceæ.*

A small genus of half-hardy evergreen shrubs, natives of Northern India. The fruit makes it a conspicuous plant for the lawn. It is of a yellowish white color, about the size of a Raspberry, but not edible. Propagated from seed or by cuttings.

Berberidopsis. From *Berberis*, and *opsis*, like; resembling the Barberry. *Linn. Enneandria-Monogynia.* Nat. Ord. *Berberidaceæ.*

A small genus of half-hardy evergreen shrubs, natives of Chili. *B. corallina* is a handsome shrub of sub-scandent habit, thick, leathery leaves, and drooping, many-flowered racemes of long-stalked, crimson-scarlet flowers. This species would be perfectly hardy south of Washington, and is a shrub of remarkable beauty. Propagated by cuttings or from seed. Introduced in 1862.

Berberis. The Barberry. From *berberys*, its Arabian name. *Linn. Hexandria-Monogynia.* Nat. Ord. *Berberidaceæ.*

There are several varieties of the common Barberry, all of which are ornamental shrubs, easily propagated by cuttings or layers, and well adapted for a large lawn, especially the purple-leaved variety. They thrive best in rather a light, sandy soil. The fruit is acid and highly esteemed for preserving, and for this purpose the seedless variety, *B. vulgaris asperina*, is mostly preferred. This variety is a native of Europe.

Bertholletia. Brazil Nut. Named after *L. C. Berthollet*, a distinguished chemist. *Linn. Polyandria-Monogynia.* Nat. Ord. *Lecythidaceæ.*

The tree that bears the Brazil Nuts of commerce. *B. excelsa*, the only species of this genus, is one of the most majestic trees in the Brazilian forests. It often attains a height of one hundred and fifty feet, and has a diameter of from three to four feet at the base. It is found in the greatest abundance in the forests on the banks of the Amazon. It is also common in Central America, and in several of the States of South America. The nuts are incased in a shell from four to six inches in diameter, which is extremely hard. Each shell contains about twenty nuts. So enormous is the weight of this fruit, that at the period when it falls the natives dare not enter the forests without covering their heads and shoulders with a strong buckler of wood. The time for collecting these nuts is in winter, when the Indians, in great numbers, ascend the rivers to obtain their harvest of nuts, upon which they depend for the year's subsistence. When the nuts are spread on the ground all the animals of the forest surround them and dispute their possession. The Indians say it is the feast of the animals as well as themselves, but they are angry with their rivalry. The gathering of the nuts is celebrated with rejoicings, like the "Harvest Home" of Old England. About once in five years another species or variety is seen in small quantities in a few of the fruit stores of New York. It is of a lighter color, much less angular, less oily, and very much finer in quality than the common Brazil Nut. It is called the Paradise Nut, and is quite distinct. It is said to grow in the interior of the country, and is gathered by the Indians, and brought to the coast, which they visit at long intervals for the purpose of trade.

Bertolonia. In honor of *A. Bertoloni*, an Italian botanist. *Linn. Decandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

A genus of very pretty trailing or creeping plants, natives of the dense forests of Brazil. *B. maculata*, typical of the genus, is an exceedingly beautiful hot-house creeper. The leaves are spotted on the surface, and purple underneath. It requires a warm, moist atmosphere, and is readily increased by cuttings. Introduced in 1848.

Bessera. Named after *Dr. Besser*, professor of botany at Brody. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of very beautiful Mexican bulbs, allied to the Squills. The flowers are scarlet, purple, or white, produced on slender scapes about a foot high. They may be grown in a frame, like half-hardy bulbs, but it is less trouble to treat them the same as the Tigridia. The bulbs must be kept warm and dry during the winter, if taken up. Propagated by offsets. Introduced in 1846.

Beta. Beet. From *bett*, the Celtic word for red; in reference to the red color of the Beet. *Linn. Pentandria-Digynia.* Nat. Ord. *Chenopodiaceæ.*

The several species included in this genus are natives of Europe, Northern Africa, and Western Asia. Four of the species are cultivated as esculents; the others are of no particular interest. *B. vulgaris*, the parent of our garden varieties, is a native of Egypt and along the whole seacoast of the Mediterranean, and is now found growing wild in those localities. The Beet has been highly esteemed as a garden vegetable for more than 2000 years, and is specially noticed by all the early writers on plants. The roots of the Beet have been much improved by cultivation, both as regards size and quality, and long ago they arrived at that state of perfection, beyond which, progress in the line of improvement must of necessity be slow. The several varieties of Mangel-wurzel and Sugar Beet, now grown so extensively in Europe, belong to the species *B. altissima*, the native country of which is unknown. The Chard Beet, or Swiss Chard, is *B. cycla*, a native of Portugal, first introduced into English gardens in 1670. It is extensively cultivated in the gardens of Europe, and forms one of the principal vegetables of the laboring class, the leaves only being used. They are stripped off and boiled as a substitute for spinach. The rib of the leaf, which is strong and fleshy, is sometimes dressed as Asparagus. Sea Beet is *B. maritima*, a species of easy culture, used for greens only, and one of the best plants under cultivation for that use. It is a native of the British coasts. The Chilian Beet, *B. Chiliensis*, a species of recent introduction, native of Chili, as its name implies, is becoming popular for ornamental gardening, particularly for large ribbon borders, the two varieties, one with bright yellow, the other with crimson foliage, contrasting finely with other plants.

Betula. Birch. From its Celtic name, *betu. Linn. Monœcia-Tetrandria.* Nat. Ord. *Betulaceæ.*

An extensive genus of deciduous trees, common in all the cold and inhospitable climates.

Some of the species are the last trees found as we approach the snow in the most elevated districts. This genus is largely represented in our Northern States by *B. alba*, the common White Birch, which, from the tremulous habit of the foliage, is in some localities called Poplar Birch. This species is remarkable for its elegance. It seldom divides the main stem, which extends to the summit of the tree, giving out from all parts numerous slender branches, forming a very neat and beautiful spray of a dark chocolate color, contrasting finely with the whiteness of the trunk. When grown as a single specimen this tree assumes a beautiful pyramidal form, making a moderate-sized tree of great beauty. *B. lenta* is the Black or Cherry Birch, so named from its resemblance to the American Black Cherries. The bark of the young twigs of this species has a sweet, aromatic taste. The wood is dark rose color, fine grained, and much used in fine cabinet work. There are several other native species common in our Northern States, all interesting, mostly low-growing trees or large shrubs.

Bidens. The botanical name of the well-known Beggar's Ticks.

Bidwillia. Named after *Mr. Bidwill*, of Sydney, an ardent cultivator of bulbs. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Allied to Anthericum. A small genus of Australian and Peruvian bulbs. The flowers are white, borne in racemes, and differing but little from the Asphodelus. Propagated by offsets.

Bignonia. Trumpet Creeper. Named after Abbé Bignon, librarian to Louis XIV. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Bignoniaceæ.*

An extensive genus of highly ornamental plants, and the type of an order equally beautiful. Most of the species are hot-house climbers, though a few assume a more arborescent character, and one, *B. radicans*, (*Tecoma radicans,*) is sufficiently hardy to withstand our severest weather when trained against a wall. The flowers of all are large and showy, produced in panicles, and are of various colors, red, blue, white, or yellow. They should be grown in rich loam, in a sunny position, or they will not flower well. Introduced in 1820.

Bilberry. See *Vaccinium.*

Billardiera. Apple Berry. Named after *Labillardière*, a French botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Pittisporaceæ.*

A small genus of green-house evergreen climbers, natives of Australia and Tasmania. The species are not remarkable for beauty of plant or flower, but are highly esteemed for their subacid fruit, which is pleasant and wholesome. The fruit is a small berry, either blue or amber-colored. Propagated by cuttings.

Billbergia. Named after Billberg, a Swedish botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

These are handsome plants when well grown. The colors of the flowers are at once rich, vivid, and delicate, and are usually contrasted in the highest manner by the equally bright tints of the colored bracts. They should be grown in pots of rich loam plunged into an active hot-bed until the growth is completed, when a cooler and drier place, as on a shelf of the hot-house, will induce them to flower freely. Propagated by suckers. Introduced from Brazil in 1825.

Bilstead. A common name of the *Liquidambar.*

Bindweed. See *Convolvulus.*

Birch. See *Betula.*

Birthroot. *Trillium erectum* and *Lewisia*, which see.

Birthwort. See *Aristolochia.*

Bitter Sweet. A popular name of the *Celastrus scandens*, and also applied to *Solanum Dulcamara.*

Bitter Weed. A common name of one of the species of *Ambrosia, A. artemisiæfolia*, Hog-Weed.

Black Alder. Winterberry. See *Ilex verticillata.*

Blackberry. See *Rubus.*

Blackberry Lily. See *Pardanthus.*

Black Bindweed. See *Polygonum convolvulus.*

Black Gum or Sour Gum. See *Nyssa multiflora.*

Black Haw. See *Viburnum prunifolium.*

Black Hoarhound. See *Ballota nigra.*

Black Jack or Barren Oak. See *Quercus nigra.*

Black Moss, Florida Moss. See *Tillandsia usneoides.*

Black Mustard. See *Sinapis.*

Black Oat Grass. See *Stipa avenacea.*

Black Oyster Plant. See *Scorzonera.*

Black Pepper. See *Piper.*

Black Snake-root. See *Sanicula Marilandica.*

Black Thorn. A common name applied to *Prunus spinosa*, and also to *Cratægus tomentosa.*

Bladderwort. See *Utricularia.*

Blandfordia. Named in honor of George, Marquis of Blandford. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Beautiful green-house bulbs from New South Wales. They should be grown in large pots filled with leaf mould, loam, and sand, placed in the green-house, and, if properly attended with water, will flower freely. The flowers are crimson or orange. Introduced in 1812. Propagated by seeds and offsets.

Blazing Star. A common name of *Liatris squarrosa*, and also given to *Chamælirium luteum.*

Blechnum. From *blechnon*, a Greek name for a Fern. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A considerable genus of Ferns, of the same group as *Lomaria*, the distinction between the two consisting in the fructification of *Lomaria* being marginal, and that of *Blechnum* being within the margin. The genus contains a considerable number of species, which are abundant in tropical countries, South America and the West Indian islands having contributed the greatest number.

Bleeding Heart. The popular name of *Dielytra* (*Diclytra, Dicentra*) *spectabilis.*

Blessed Thistle. *Cnicus Benedictus.* A genus of Thistles, natives of the Levant and Persia. Naturalized and common on the roadsides in the Southern States.

Bletia. Named after a Spanish botanist of the name of Blet. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

Pretty, tuberous-rooted, terrestrial Orchids, which require to be grown in pots of fibrous loam and leaf mould, and produce large spikes of shaded purple flowers. A somewhat high temperature, say 70° or 75°, with plenty of moisture while they are growing, and a considerable reduction of both as soon as it is completed, is necessary to cultivate them in perfection. They are increased by means of offsets. Introduced from Mexico in 1822.

Blood-root. See *Sanguinaria.*

Blue Bells. See *Campanula rotundifolia.*

Blueberry. See *Vaccinium.*

Bluebottle. See *Centaurea cyanus.*

Blue Cohash. Popular name of *Caulophyllum thalictroides*, which is also called *Pappoose-root.*

BLU

Blue Daisy. See *Galathea celestis.*

Blue Flag. See *Iris versicolor.*

Blue-eyed Grass. See *Sisyrinchium.*

Blue Grass (Kentucky.) See *Poa pratensis.*

Blue Gum. See *Eucalyptus.*

Blue Tangle, Dangleberry, Huckleberry. See *Gaylussacia frondosa.*

Bluet. See *Houstonia.*

Blue Pea. See *Clitoria.*

Blue-Weed. Viper's Buglos. See *Echium vulgare.*

Bocconia. Named after P. Boccone, M.D., a Sicilian. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

B. Japonica, the only species adapted for the border, is a plant of quite recent introduction. A small clump or single specimen of it would take high rank among ornamental-leaved plants. Unfortunately, it refuses to be kept within bounds, and will, when once established, not only take possession of the border, but the lawn as well; and for this reason, notwithstanding its great beauty, it should not be planted on the lawn.

Bœhmeria. Ramee or Ramie. In memory of *George Rudolph Bœhmer*, a German botanist. *Linn. Monœcia-Tetrandria.* Nat. Ord. *Urticaceæ.*

A genus of herbaceous plants or shrubs, allied to the true Nettles, but differing from them in not having stinging hairs. The most interesting species is *B. nivea*, the Chinese Grass-cloth Plant. It is a small, shrubby plant about three or four feet high, throwing up numerous straight shoots, which are about as thick as the little finger, and covered with soft short hairs. Its leaves grow on long hairy footstalks, and are broadly heart-shaped, about six inches long and four broad. They are of a deep green color on the upper side, but covered on the under side with a dense coating of white down, which gives them an appearance like that of frosted silver. The beautiful fabric known as Grass-cloth, which rivals the finest cambric in softness of texture, is manufactured from the fiber obtained from the inner bark of this plant. The Chinese bestow an immense amount of care and labor upon its cultivation and the preparation of its fiber. They obtain three crops of its stems annually, the second being considered the best. To obtain the fiber, the bark is stripped off in two long pieces and carefully scraped with a knife, so as to get rid of all useless matter, after which it is softened and separated into fine filaments either by steeping it in hot water or holding it over steam. This plant has been introduced into the Southern States, where it grows freely; but the difficulty in separating the fiber, so as to make its production profitable, has yet to be overcome.

Bog Moss. See *Sphagnum.*

Bog Rush. *Juncus.* Common in all marsh grounds or swamps.

Bollea. Derivation of name not given. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids, consisting of only two species, natives of New Grenada. They are showy plants, with radical foliage, from the base of which the flowers are produced on single scapes. The flowers are shaded pink, with a bright yellow lip. They require to be grown in pots of moss, in rather a warm house, and are increased by division.

Bolbophyllum. From *bolbos*, a bulb, and *phyllon*, a leaf; referring to the leaves issuing from the apex of the pseudo-bulbs. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

BOU

A genus of dwarf epiphytal Orchids from Africa and the East Indies. More curious than beautiful. Flowers large, single or in pairs; color, yellow, white, with purple spots or stripes. Not often seen in collections.

Bomarea. Derivation of name not given. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A somewhat extensive genus of tuberous-rooted plants, formerly included in the genus *Alstrœmeria*, and differing only in the fruit. The species abound in the Peruvian Andes, and are common in other high elevations in South America. *B. edulis* is a West Indian species, the roots of which are eaten like those of the Jerusalem Artichoke. For further description and propagation, see *Alstrœmeria.*

Bonapartea. Named in honor of *Napoleon Bonaparte. Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

A genus remarkable for the gracefulness of their long, rush-like leaves. They are well adapted for growing in vases out of doors in summer. They require a warm house in winter. Propagated by seeds. Introduced from Mexico in 1828.

Boneset. See *Eupatorium.*

Borago. Borage. Altered from *cor*, heart, and *ago*, to affect; referring to the cordial qualities of the herbs. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ.*

Hardy annual and perennial herbs, common throughout Europe. The leaves of *B. officinalis* are sometimes used in salads or boiled as spinach. The spikes of flowers are aromatic, and sometimes used in cooling drinks.

Borecole. Kale, Brussels Sprouts. *Brassica oleracea fimbriata.* The chief characteristic of the Borecoles or Kales consists in their not producing heads like the Cabbage, or eatable flowers like the Cauliflower or Broccoli, and by its beautifully cut and curled leaves, which are of a green or purple color, or variegated with red, green, or yellow. Several of the sub-varieties are known in our markets, and extensively grown by market gardeners, the most popular being the Brussels Sprouts and German Greens. The Borecole is a native of the British coasts and the north of Europe. The garden varieties are not many removes from the species.

Boronia. Named after *Boroni*, an Italian attendant of Dr. Sibthorp. *Linn. Octandria-Monogynia.* Nat. Ord. *Rutaceæ.*

A genus of elegant green-house shrubs from New Holland. The flowers are pink or whitish. From the difficulty of growing this plant, it is rarely seen in collections. Propagated by cuttings.

Botrychium. Moonwort. From *botrys*, a bunch; in reference to the bunch-like form of the fructification on the back of the leaf. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of hardy Ferns, composed of about a dozen species, found in nearly all countries except Africa. *B. lunaria*, Moonwort, is found rarely in the North and West. Many of the other species are common in rich woods.

Bottle-brush. See *Inga.*

Bottle-gourd. See *Lagenaria vulgaris.*

Bottle-grass. One of the common names of *Setaria.*

Bottle Tree of Australia. See *Brachychiton.*

Bougainvillea. Named after the French navigator *Bougainville. Linn. Octandria-Monogynia.* Nat. Ord. *Nyctaginaceæ.*

A genus of tropical shrubs, of a climbing or

scrambling habit. They are remarkable for their beautiful rose-colored bracts, in cones, like those of the Hop. Those of *B. spectabilis* are singularly handsome. They are natives of the warmer parts of South America. Propagated by cuttings.

Bouncing Bet. A popular name of *Saponaria officinalis*.

Bourbon Palm. See *Latania*.

Boussingaultia. Madeira Vine. Named in honor of *J. B. Boussingault*, a celebrated naturalist and traveler. *Linn. Hexandria-Monogynia.* Nat. Ord. *Basellaceæ*.

The only species, *B. baselloides*, is an elegant climbing tuberous-rooted plant from the Andes, a rapid grower and profuse bloomer. The flowers are nearly white and deliciously fragrant. It grows readily in any garden soil, and is readily increased by division or by seed. Introduced in 1836.

Bouvardia. Named after *Dr. Bouvard*, curator of the Botanic Garden, Paris. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cinchonaceæ*.

Green-house evergreen shrubs, introduced from Mexico. Many new varieties have been produced in this country, chiefly by *sports*, the best of which for florists' use is *B. Hendersonii*, by John Henderson, of Flushing, and *B. Davidsonii*, by William Davidson, of Brooklyn. In moist, rich soils it will bloom freely in the autumn months, if planted out in the garden. The several varieties are extensively used for cut flowers in winter. Propagated by root cuttings, or by cuttings of young wood in sand.

Bowenia. In honor of *W. G. Bowen*, a governor of Queensland. *Linn. Dioecia-Polyandria.* Nat. Ord. *Cycadaceæ*.

A remarkable genus of *Cycadaceæ*, consisting of but one species, which was discovered in Australia in 1819. The species is described in the *Botanical Magazine* as follows: "The most prominent character of *Bowenia* is the compound leaf, its general characters, (all but shape,) texture, and venation; the leaflets do not differ from those of *Macrozamia*, and are so very similar to those of the West Indian *Zamias* that it is difficult to distinguish them generically, except that in *Bowenia* the leaflet is decurrent by the petiole, and not articulated with the rachis." The fern-like aspect presented by this plant is very remarkable and interesting, giving it a prominent position in the green-house. Propagated by seeds or from suckers.

Box. The common name of *Buxus sempervirens*, a plant at one time much used for edgings in ornamental gardening. It is a native of Europe and Asia, and is readily increased by cuttings.

Boxberry. A name sometimes applied to the Wintergreen, *Gaultheria procumbens*.

Box Elder. See *Negundo*.

Brachychiton. From *brachys*, short, and *chiton*, a tunic. *Linn. Polygamia-Monœcia.* Nat. Ord. *Sterculaceæ*.

A genus of tropical and sub-tropical trees from Australia. *B. acerifolium* is called the Flame Tree about Illawarra, on account of its bright scarlet flowers, which make the tree a conspicuous object at a distance. *B. Bidwillii*, a native of the Wide Bay district, has bright crimson flowers, produced in axillary bunches. *B. Delabechia* is a very interesting species, popularly known as the Bottle Tree of Australia.

Brachycome. From *brachys*, short, and *kome*, hair. *Linn. Syngenesia-Polygamia-Superflua.* Nat. Ord. *Compositæ*.

This beautiful annual is found on the banks of the Swan River, in Australia, and has there the very appropriate name of Swan River Daisy, as the flower closely resembles the Daisy. The plant grows from six to ten inches high, and has a closely compact branching habit, producing an abundance of flowers. It is well adapted for small beds or rockeries. Propagated by seeds. Introduced in 1840.

Brachysema. From *brachys*, short, and *sema*, standard; the flowers having the standard petal short. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ*.

A genus of handsome green-house shrubs, mostly climbing, from Australia. *B. aphyllum* is, as its name would imply, a leafless plant, the branches being singularly compressed and winged, so as to perform the functions of leaves. Small brown scales are found scattered over these branches, and from these the flowers grow. They are single, large, and of a bright blood-red color. *B. lanceolatum* is a very handsome species, and well adapted for the green-house, flowering, as it does, in winter or the early spring months. Its leaves are ovate or lanceolate in form, with a glossy upper surface, and covered with a silvery pubescence underneath. The flowers are in axillary clusters, large, and rich scarlet.

Bracted Bindweed. See *Calystegia*.

Brahea. Derivation of name not given. *Linn. Hexandria-Monogynia.* Nat. Ord. *Palmaceæ*.

A genus of medium-sized Palms, with fan-like leaves and spiny leaf-stalks. *B. filamentosa*, a native of Lower California, is largely cultivated in our green-houses for decorative purposes. It is of graceful habit and rapid growth, succeeding well with but little care in the green-house. This species is also known as *Pritchardia filifera*. It is now said that *B. filamentosa* is neither a *Brahea* nor a *Pritchardia*, and it is therefore proposed to call it *Washingtonia*. Young plants are obtained from seed.

Brainea. After *J. C. Braine*, of Hong Kong. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ*.

B. insigna, the only known species, is a very handsome dwarf Tree Fern, a native of Hong Kong. The stem is from three to four feet high; the fronds about three feet long, finely pinnate, giving the plant an elegant outline. Sir W. J. Hooker says: "We have here a very remarkable, and, if I may say so, a new form among the Ferns."

Brake or Bracken. The popular name of *Pteris aquilina*, one of our common and strong-growing Ferns.

Bramble. See *Rubus*.

Brassavola. Named after *A. M. Brassavola*, a Venetian botanist. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

A small genus of epiphytal Orchids, belonging exclusively to tropical America. But few of the species have merits that entitle them to a place in general collections. The few are of easy culture, and produce flowers nearly six inches across, white, or creamy white, spotted with chocolate. The plants are all dwarf, with very short flower stems. They are usually grown on a block, in a rather high temperature. Increased by division. Introduced in 1840.

Brassia. Named after *Mr. Brass*, a skillful botanical traveler and draughtsman. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

This genus of *Orchids* is nearly allied to *On-*

cidium, but not so popular because of their dull-colored flowers. Some of the species are highly valued by their growers, as they produce, with but little care and trouble, an abundance of flowers from June to August. Flowers mostly yellow, or greenish white, spotted with brown. Introduced in 1844.

Brassica. Cabbage. From *bresic*, the Celtic name for Cabbage. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

From this genus, which is found throughout Europe, more particularly in Great Britain, there has been produced a greater variety of culinary vegetables than from any other. It comprehends *Cabbage*, *Cauliflower*, *Turnip*, *Borecole*, *Broccoli*, *Brussels Sprouts*, and *Kohl Rabi*, each of which will be noticed under its popular name.

Bravoa. Named after *Bravo*, a Mexican botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

This genus consists of but a single species, *B. geminiflora*, a graceful little tuberous-rooted plant, native of Mexico. The plant has a small tuft of narrow leaves, from which arises a flower spike about a foot high, with a terminal cluster of small crimson, Amaryllis-like flowers, in July. It will flower in the open border, but requires the protection of the green-house during winter. Propagated by division.

Brazil Nut. See *Bertholletia.*

Bread Fruit. See *Artocarpus.*

Brexia. From *brexis*, rain; in reference to the protection from rain given by the large leaves of some of the species. *Linn. Pentandria-Monogynia.* Nat. Ord. *Broxiaceæ.*

A small genus of very handsome evergreen trees, natives of Madagascar. The flowers are of a leathery texture, greenish color, and produced in axillary umbels. They have alternate leathery leaves, furnished with spiny teeth. They are readily increased by cuttings. The plants are too large for ordinary cultivation in the green-house.

Bread Nut. See *Brosimum.*

Bristly Foxtail Grass. See *Setaria.*

Briza. Quaking Grass. From *brizo*, to nod; on account of the quaking character of the spike. *Linn. Triandria-Digynia.* Nat. Ord. *Gramineæ.*

A handsome genus of grasses, some of which are cultivated in the garden as ornamental plants. The grasses dried are highly esteemed for bouquets of dried flowers and grasses. The kinds usually grown are *B. media*, a perennial, and *B. maxima*, a larger species, an annual from the south of Europe. It is of easy culture, requiring only to be sown where it is wanted to be grown, in the open border, as early in spring as the ground can be prepared.

Broccoli. *Brassica oleracea botrytis.* This vegetable somewhat resembles the Cauliflower, from which it is supposed to have originated, although there is nothing definitely known as to its origin. It is, however, more recent than most others of the genus. Miller says it was introduced into England from Italy in 1724, two varieties, white and purple, from which all the present garden varieties have been produced.

Brodiæa. Named after *J. J. Brodie*, a Scotch cryptogamist. *Linn. Triandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Very curious little bulbous-rooted plants. *B. Californica*, with blue and white flowers, is easily cultivated in sandy loam with the convenience of a green-house or good frame. Increase is

sparingly effected by offsets. Introduced in 1848.

Brome Grass. See *Bromus.*

Brook Weed or Water Pimpernel. The common name of *Samolus*, a common plant in wet or marshy places.

Broom Corn. See *Sorghum.*

Broom Rape. A popular name of the genus *Orobanche.*

Bromus. Brome Grass. So called from *bromos*, the Greek name for a wild oat. *Linn. Triandria-Monogynia.* Nat. Ord. *Graminaceæ.*

A genus of poor, coarse-growing grasses, of little use in agriculture, and of little beauty. This is the pest of the farmer, to which he applies a significant and justly proper name, Cheat or Chess. However much it may cheat the farmer by crowding out Wheat and Rye, we cannot excuse him for cheating himself with the absurd delusion, so widely prevalent, that his Wheat has turned into Chess, from some cause which cannot be explained. The species are annuals, and the seed will remain a long time in the ground, and germinate only when the conditions of growth are favorable. It is a native of Europe, though naturalized in many places in this country.

Brongniartia. Named in honor of *Brongniart*, a French botanist. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A valuable and rather scarce plant, having flesh-colored flowers, which should be treated as a green-house shrub, potting it in loam and sand. A native of New Spain. Introduced in 1827.

Brosimum. Bread Nut. From *brosimos*, good to eat; the fruit being edible. *Linn. Polygamia-Dioecia.* Nat. Ord. *Artocarpaceæ.*

A small genus of tall-growing trees, natives of the West Indies and South America, where they are highly esteemed for the food obtained from them, and for the valuable timber they furnish. *B. Alicastrum* is the Bread-nut Tree of Jamaica, the fruit of which is about an inch in diameter, and contains a single seed or nut, which is said to form an agreeable and nourishing article of food. When boiled or roasted the nuts have the taste of hazel-nuts. Snake-wood or Leopard-wood is the heart-wood of one of the species, *B. Aubletti*, a native of Trinidad and British Guiana. *B. galactodendron*, which is the celebrated Cow Tree of South America, yields a milk of as good quality as that from the cow. It forms large forests on the seacoast of Venezuela, growing 100 or more feet high, with a smooth trunk six to eight feet in diameter. Its milk, which is obtained by making incisions in the trunk, so closely resembles the milk of the cow, both in appearance and quality, that it is commonly used as an article of food by the inhabitants of the localities where the tree abounds. Unlike most other vegetable milks, it is perfectly wholesome, and very nourishing, possessing an agreeable taste, like that of sweet cream, and a balsamic odor; its only unpleasant quality being a slight amount of stickiness. Like animal milk, it quickly forms a yellow, cheesy scum on the surface, and after a few days turns sour and putrefies.

Broughtonia. Named after *Mr. Broughton*, an English botanist. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of very handsome West Indian Orchids, somewhat resembling the *Lælia* and *Cattleya.* They commonly grow on bushes in

Cuba and Jamaica. The flowers are crimson, and produced from the top of the pseudo-bulb during the summer, and are of long duration. They are easy of culture, growing best on blocks of wood, and should have plenty of light and sun. Propagated by division. Introduced in 1824.

Browallia. Named after *J. Browallus*, Bishop of Abo. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

The Browallias are handsome, free-flowering, half-hardy annuals. They succeed best started in the green-house and repotted two or three times; they can, however, be successfully grown by starting in the hot-bed. Occasionally grow well when sown in the open border. The plants will be completely studded over with their beautiful blue and white flowers the whole summer. They are also excellent winter-flowering plants. Propagated from seed. Natives of South America. Introduced in 1798 to 1828.

Brownea. Named in honor of *Dr. Patrick Browne*, who wrote a history of Jamaica. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A small genus of low evergreen trees, chiefly confined to Venezuela and New Granada. The leaves are alternate, and from one to one and a half feet long, with from four to twelve pairs of entire leaflets. The flowers are rose-colored or crimson, and disposed in terminal or axillary heads. *B. grandiceps* has large and beautiful heads of flowers, of a pink color, arranged in tiers, the outer ones expanding first, followed by the others until all are open, when the flower-head somewhat resembles that of a *Rhododendron.* A singular fact in connection with this plant is, that the leaves droop during the day so as to almost hide the flowers from view, and protect them from the heat of the sun. At evening they rise up again, and remain erect during the night, and the flowers are thus exposed to the falling dew. The species are rarely seen under cultivation.

Brugmansia. Named in honor of *Prof. S. J. Brugmans*, a botanical author. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

Peruvian shrubs, or low, succulent-stemmed trees, of which *B. suaveolens* (better known by the name of *Datura arborea*) and *B. sanguinea* are magnificent species. Being large plants, growing to the height of ten or twelve feet, they look best when planted in the ground in a conservatory; but they will grow well in large pots, or they may be planted in the open garden in the summer season, and taken up and preserved in a back shed, from which the frost is excluded, during winter, to be replaced in the open border the following spring. The flowers are trumpet-shaped, a foot or more in length, and very fragrant. The plants grow freely in light, rich soil; and they are readily propagated by cuttings either of the shoots or roots.

Brunellia. Self-heal. Name said to be taken from the German *braune*, a disease of the throat, for which this plant was a reputed remedy. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A small genus of low-growing weeds, common everywhere. *B. vulgaris* has become naturalized from Europe, and is common on roadsides. It grows about six inches high, and has pale purple flowers.

Brunsvigia. Named after the house of Brunswick. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.* Of this splendid genus of Cape bulbs Sweet observes: "Some of the bulbs grow

to a great size, and require large pots to have them flower in perfection; or, if planted out in the open borders in spring, there will be a better chance of their flowering, taking the bulbs up again in autumn; or the best way to succeed well with them is to have a pit built on purpose for them, so as to occasionally be covered with the lights to keep off too much wet, and to be covered close in severe weather, as they cannot bear the frost. The mould must be made for them of full one-third sand, more than one-third of turfy loam, and the rest of leaf mould, all well mixed together, but not chopped too small, as the roots run better through it for being rough and hollow. When in full growth and flower they require a frequent supply of water, but none while dormant." *B. Josephinæ* is very seldom induced to flower in this country, though no uncommon occurrence in its native country, where it is said to produce very large heads of flowers. Several species flower more freely, though none so grand. Propagated by offsets.

Brussels Sprouts. See *Borecole* and *Cabbage.*

Bryonia. From *bryo*, to sprout; in allusion to the quick growth of the stems. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Cucurbitaceæ.*

A genus of climbing, hardy herbaceous perennials, natives of Europe, the East Indies, and the Cape of Good Hope. *B. alba* and *B. dioica* are generally considered by botanists to be one species, the only difference being in the color of the berries. This species is what is generally known as the Common Bryony, and is found in the hedgerows of Great Britain. It has a very large tuberous root, from which twining stems spring, which are annual and rough. The plants climb by tendrils, and, what is very unusual, the direction of the spiral is now and then changed, so that, after proceeding in one course for some distance, the tendril suddenly changes to an opposite direction. The male and female flowers are in separate clusters; sometimes, though not always, they are on different plants. The plant has a fetid odor, and possesses acrid, emetic, and purgative properties, and from its elegant appearance in autumn, with its brilliant colored fruit, accidents not unfrequently occur to children and others incautiously tasting the fruit, which is an active poison. Singularly enough, the young shoots may be cooked and eaten with impunity. When served up in the same manner as Asparagus, they are said to equal it in flavor. Many of the species are not poisonous, and are much valued for their medicinal properties.

Bryony. See *Bryonia.*

Bryophyllum. So named from *bryo*, to grow, and *phyllon*, a leaf; in reference to the circumstance of the leaf, when laid upon damp earth, emitting roots, whence arise young plants. *Linn. Octandria-Tetragynia.* Nat. Ord. *Crassulaceæ.*

B. calycinum, a species common in the green-house, is one of the House Leeks, and a native of India. When in flower it is quite handsome, producing loose panicles of drooping, greenish-purple flowers. It is very easily grown.

Buckbean. The common name of a plant belonging to the Gentian family, *Menyanthes trifoliata*, common in wet places, and of little interest.

Buckthorn. See *Rhamnus.*

Buckeye. See *Æsculus.*

Buckwheat. *Fagopyrum esculentum.* The common Buckwheat is a native of Central Asia, and has long been under cultivation. It is more ex-

tensively grown in this country as an article of food than in any other, Buckwheat cakes being purely an American institution. It thrives on a poor soil that would not sustain many other plants, and give a fair yield. Of the improvement in the quality of this grain from its native wild state we have no record. There are several varieties grown, but the quality depends largely upon soil and climate.

Buddlea. Named after *A. Buddle*, an English botanist. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Scrophulariaceæ.*

An extensive genus of herbaceous plants, shrubs, and low-growing trees. Leaves opposite and thickly covered with hairs. The flowers of some of the species are very beautiful and fragrant; they are mostly small, bright orange, purplish or lilac, and arranged in small globular heads, on long peduncles. They are natives of South America, Mexico, Africa, and tropical Asia. Some of the species are half-hardy, and would be likely to succeed well south of Washington.

Buffalo Grass or Buffalo Clover. See *Trifolium.*

Bugle. See *Ajuga.*

Bugle-weed. The popular name of *Lycopus Virginicus.*

Bugloss. See *Lycopsis arvensis.*

Bulbine. From *bolbos*, a bulb. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Half-hardy plants, available for flower-gardening purposes. They are showy, fragrant, and do not require any particular care in their management. Propagated rapidly by cuttings. Natives of the Cape of Good Hope. Introduced in 1820.

Bulbocodium. From *bolbos*, a bulb, and *kodion*, wool; referring to the woolly covering of the bulbs. *Linn. Hexandria-Monogynia.* Nat. Ord. *Melanthaceæ.*

Very handsome, hardy bulbs, bearing purple flowers, and well deserving attention. They should be carefully watered in dry weather. *B. vernum* is one of our earliest spring flowers. Introduced from Spain in 1629. The other species, *B. versicolor*, flowers toward the autumn. Introduced from the Crimea in 1820.

Bulrush or Club-Rush. The popular name of the genus *Scirpus*, which includes a number of species of marsh plants.

Bunch-berry. A common name of *Cornus Canadensis*, dwarf Cornel or Dog-wood.

Buphthalmum. Ox-eye. From *bous*, an ox, and *ophthalmos*, an eye; in allusion to the resemblance the disk of the flowers bears to an ox's eye. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A genus including hardy annuals, perennials, and green-house evergreen shrubs. Two of the more conspicuous species are hardy perennials, natives of Central Europe. They grow from a foot to a foot and a half high; leaves narrow, flowers large, bright yellow. They have too weedy an appearance for a collection of choice plants.

Burdock. The well-known popular name for *Lappa officinalis*, of which there are two varieties, *minor* and *major;* the common Burdock being the latter.

Bur Marigold. One of the common names of the genus *Bidens.*

Burning Bush. See *Euonymus.*

Burlingtonia. Named after the *Countess of Burlington. Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of very handsome epiphytal Orchids, inhabiting Brazil. They are remarkable for their long, pendulous racemes of snow-white flowers, with the lip touched or lined with yellow. A few of the species have flowers in which yellow or lilac colors predominate. The plants of this genus are all of dwarf habit, with beautiful evergreen foliage. They will grow either on cork or in baskets. Propagated by division. Introduced in 1824.

Bur Reed. See *Sparganium.*

Burtonia. Named after *D. Burton*, a collector for the Kew Gardens. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A small genus of dwarf, heath-like shrubs, natives of Australia. The flowers are pea-shaped, axillary, and often thickly gathered on the ends of the branches; the corollas rich purple, the keel generally of a deeper color, and the standard generally having a yellow blotch at its base. There are only a few species under cultivation, but they are all conspicuous objects in the green-house. They come into flower in April. Propagated from cuttings or half-ripened wood. Introduced in 1803.

Bush Clover. See *Lespedeza.*

Bush Honeysuckle. A popular name for the genus *Diervilla*, which see.

Butcher's Broom. See *Ruscus.*

Butomus. Flowering Rush. From *bous*, an ox, and *temno*, to cut; in reference to its acrid juice causing the mouth to bleed. *Linn. Enneandria-Hexagynia.* Nat. Ord. *Butomaceæ.*

B. umbellatus is a beautiful aquatic plant, common in the marshes of Great Britain. Gerarde, (1629,) in speaking of this plant, says: "The Water Gladiole, or Grassie Rush, is of all others the fairest and most pleasant to behold, and serveth very well for the decking and trimming up of houses, because of the beautie and braverie thereof." A variety with striped leaves, lately introduced, is now highly recommended for collections of aquatic plants.

Butter-and-Eggs. A local name for *Linaria vulgaris.*

Buttercup. See *Ranunculus.*

Butterfly Pea. A name sometimes given to the *Clitoria*, which see.

Butterfly Weed. See *Asclepias tuberosa.*

Butternut. See *Juglans.*

Butter Tree. See *Bassia.*

Button-Wood. See *Platanus.*

Butterfly Orchid. See *Oncidium.*

C.

Cabbage. *Brassica oleraceæ.* For the following concise history of the Cabbage we are indebted to the Treasury of Botany, London, 1866:

"The Cabbage, in its wild state, is a native of various parts of Europe, as well as of several places near the sea in England. It is a biennial, with fleshy-lobed leaves, undulated at the margin, and covered with bloom; altogether, so different in form and appearance from the Cabbage of our gardens that few would believe it could possibly have been the parent of so varied a progeny as are comprised in the Savoy, Brus-

sels Sprouts, Cauliflower, Broccoli, and their varieties. A more wonderful instance of a species producing so many distinct forms of vegetation for the use of man is scarcely to be met with throughout the range of the vegetable kingdom. The common, or cultivated Cabbage, *B. oleracea capitata*, is well known, and from a very early period has been a favorite culinary vegetable, in almost daily use throughout the civilized world. The ancients considered it light of digestion when properly dressed, and very wholesome if moderately eaten. For the introduction of our garden variety of Cabbage we are indebted to the Romans, who are also believed to have disseminated it in other countries. It is said to have been scarcely known in Scotland until the time of the Commonwealth, when it was carried there from England, by some of Cromwell's soldiers; but it now holds a prominent place in every garden throughout the United Kingdom." From its wild state the Cabbage has been brought to its present state of perfection very gradually, by careful selection under cultivation. The various stages of these improvements have not been sufficiently noted to enable us to award the credit where it properly belongs. In the improvements made within the last fifty years the market gardeners around New York have taken a conspicuous part, and to them we are indebted for our best market varieties. One of the most noticeable is *Henderson's Early Summer*, a variety that originated near Jamaica, Long Island, within the last few years. The Red Cabbage, *B. oleracea rubra*, is an entirely distinct variety, but its origin and early development are unknown. It has been known in Holland for several hundred years, and the Dutch have made the growing of the seed an extensive business. The Savoy Cabbage, *B. oleracea bullata*, differs but little from the other kinds of Cabbage. It is distinguished by its leaves being wrinkled in such a manner as to have a netted appearance. The Savoys are remarkable for their tender, crisp leaves and excellent flavor. It would seem not to be generally known that the Savoys are the most delicious of all the Cabbages. The Brussels Sprouts, or Bud-bearing Cabbage, *B. oleracea bullata minor*, originated in Belgium, and has from a very early date been extensively grown around Brussels, where it seems to thrive better than in most other countries. It forms a head somewhat like the Savoy, of which it is considered a sub-variety, differing in the remarkable manner in which it produces at the axils of the leaves, along the whole length of the stem, a number of small sprouts resembling miniature Cabbages of one or two inches in diameter, of an excellent flavor.

Cabbage Palm. See *Areca*.

Cacalia. Tassel Flower. From *kakos*, pernicious, and *lian*, exceedingly; supposed to be hurtful to the soil. *Linn. Syngenesia-Polygamia-Æqualis.* Nat. Ord. *Compositæ.*

C. coccinea is the only species worthy of cultivation in the flower garden, a half-hardy annual, that can be grown readily from seed sown where wanted to grow. Its bright scarlet blossoms are borne in profusion from July to October. Introduced from New Holland in 1792.

Cactus. A name applied by Theophrastus to semi-spiny plants. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

The very remarkable succulent plants, arranged by Linnæus under the name of Cactus,

have been distributed by modern botanists over numerous genera, which they are still continually changing and re-arranging. At first a few plants were left in the genus Cactus, but now that genus is annihilated, and seven or eight new genera substituted for it; still, as all the plants that once composed it, and the new ones of the same nature that collectors are continually sending home, are known by the general name of Cacti, it has been thought advisable to give here a slight sketch of the whole family. In the time of Linnæus very few Cacti were known, and even in the year 1807 Persoon enumerated only thirty-two; but now about five hundred living species are to be found in a single collection, and numbers of new species are being sent home by collectors every year. These new species are chiefly found in the tropical regions of America, but they extend over 75° of latitude, some being found within the boundary of the United States and some near the town of Conception, in Chili. By far the greater number, however, grow in the dry, burning plains of Mexico and Brazil, where they are subjected to the alternate seasons of extreme moisture and extreme drought. In these arid plains, where all nature seems parched up for six months in the year, the Cacti have been mercifully provided to serve as reservoirs of moisture, and not only the natives, by wounding the fleshy stems with their long forest knives, supply themselves with a cool and refreshing juice, but even the cattle contrive to break through the skin with their hoofs, and then to suck the liquid they contain, instinct teaching them to avoid wounding themselves with the spines. Some of the species serve the Indians for food. The Cacti are arranged by nature into several distinct groups, the first of which consists of the tree Cacti, or those kinds of Cereus which have long, slender stems, and which usually grow on the summits of the mountains of Mexico and Brazil, forming a singular kind of crest. These are generally thirty or forty feet high, and sometimes are branched like candelabra, and sometimes consist of only one naked stem, not thicker than a man's arm, though of such enormous height. Others, again, not only grow to a height of fifty or sixty feet, but have a diameter of two or three feet. The Mammillarias and Echinocacti, which form another group, grow in the valleys of the temperate regions, generally in loamy soils and low grass; and the Opuntias and Pereskias, which form two others, are also principally found in the temperate latitudes. The Melocacti, or Melon Cacti, and the Rhipsalis, which has narrow-jointed stems, and two other groups, are only found in the hottest parts of the tropics. With regard to the culture of Cacti, it is found that, generally speaking, they ought to have a season of complete rest, followed by one of excitement. They ought to be watered sparingly while dormant, and freely when in bloom. They ought all to be grown in a light, sandy soil. Several of the best known genera of Cactus, such as *Epiphyllum*, *Cereus*, and *Phyllocactus*, will be found under their respective heads.

Caladium. A word of uncertain derivation, probably from *kaladion*, a cup. *Linn. Monœcia-Enneagynia.* Nat. Ord. *Araceæ.*

Of this genus of tuberous-rooted plants there are many rare and beautiful species and varieties that rank high as ornamental foliage plants, useful only as green-house or rather hot-house plants, as they will not succeed well with

a temperature below 60°. They must be kept dormant from October to April, and should never be chilled when started to grow. Those found in the swamps of the River Amazon, in the province of Para, are pre-eminent for graceful growth, and for elegant and brilliant markings. All the species are easily propagated by division of the tuber just as the growth begins. Introduced in 1828. The plant commonly known as *Caladium esculentum* does not belong to this genus, and will be described under *Calocasia*.

Calamint. See *Calamintha*.

Calamintha. Calamint. From *kalos*, beautiful, and *mintha*, mint. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Lamiaceæ*.

A genus of coarse-growing, hardy herbaceous perennials, with purplish or whitish flowers. They are indigenous or extensively naturalized in many parts of this country. They are mostly aromatic herbs, and formerly had important medicinal properties attributed to them. *C. nepeta*, Basil Thyme, is one of the best known species. None of them has sufficient merit to warrant its introduction into the garden, either for ornament or use.

Calampelis. (*Eccremocarpus.*) From *kalos*, pretty, and *ampelis*, a vine. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Bignoniaceæ*.

The only species, *C. scabra*, is a well-known, beautiful, half-hardy climbing plant. Trained to a trellis or to a south wall in the open air, it forms a very ornamental object through the summer months, its bright orange-colored flowers being conspicuous among the pleasing delicate green of the foliage. It grows best in rich loam, and should be protected in a cold pit through the winter. Cuttings root readily in a gentle heat. Introduced from Chili in 1824.

Calamus. See *Acorus*.

Calandrinia. Named after Calandrini, a German botanist. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Portulacaceæ*.

Very beautiful dwarf-growing plants, usually treated as tender annuals, though of perennial duration if protected in winter. The seeds may be sown in gentle heat about the middle of March, and planted in the open air in May, where they are a blaze of beauty whenever the sun shines upon them. The soil should be light and rather dry. The best of the species are *speciosa*, *grandiflora*, *discolor*, and the new *umbellata*. Introduced from South America in 1826.

Calanthe. From *kalos*, beautiful, and *anthos*, a flower; literally, a pretty blossom. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ*.

A large genus of stemless terrestrial Orchids, having broad, many-ribbed leaves, and long spikes of flowers, which are of various colors, white, lilac, purple, and copper colored. They require a very light house for the perfect development of flowers and to give them good color. The same general treatment as given the Bletia, with the exception of more careful watering, is all they require. Propagated by division of roots. Most species are natives of tropical Asia. Introduced about 1820.

Calathea. From *kalathus*, a basket; in reference to the leaves being worked into baskets in South America. *Linn. Monandria-Monogynia.* Nat. Ord. *Marantaceæ*.

A genus of interesting plants, with beautifully marked foliage. *C. zebrina*, generally known as *Maranta zebrina*, is one of the most conspicuous, the leaves having alternate stripes of light and

dark green. They are mostly natives of Brazil, and require a high temperature and humid atmosphere for perfect development. They are increased by root division. Introduced in 1826.

Calceolaria. Slipperwort. From *calceolus*, a slipper, in reference to the shape of the flower. *Linn. Diandria-Monogynia.* Nat. Ord. *Scrophulariaceæ*.

The numerous species of this well-known genus, found abundantly in the regions of Chili and Peru, are divided into two classes, herbaceous and shrubby. The former are found near the line of the sea, the latter are inhabitants of the higher parts of the Cordilleras; hence it is that, among the many introduced species, some are more or less hardy, growing freely in a shady border, and others require the humid atmosphere of a green-house. Many of the original species have been modified by hybridizing, and are rarely found in collections. The hybrids are very numerous, and many are highly prized. The European florists, having made a specialty of this genus, have brought out varieties remarkable for size, color, and markings. Propagation of the herbaceous varieties is readily effected by seeds, and the shrubby varieties by cuttings or from seeds.

Calendula. Pot Marigold. From *calendæ*, the first days of the months; in reference to its flowers being produced almost every month. *Linn. Syngenesia-Superflua.* Nat. Ord. *Compositæ*.

There are several handsome species, some of which are shrubby and some annuals. The common Marigold, *C. officinalis*, and its varieties, and *C. stellata*, are the handsomest of the annual species. The Cape Marigolds, *C. pluvialis* and *C. hybrida*, have been removed to a new genus, which is called *Dimorphotheca*. Both these species are hardy annual plants, with very elegant flowers, which close at the withdrawal of the sun; and as they do not open at all when it is dark, or heavy clouds foretell the approach of rain, Linnæus called the commonest species *C. pluvialis*, or the Rainy Marigold. The florets of the ray of the flowers of this plant are of a pure white inside, and of a dark purple on the outside; while those of *C. hybrida* are of a dingy orange outside. A tincture is made from the flowers of the several varieties, that is considered highly efficacious for bruises or sprains, affording relief more quickly than arnica.

Calico Bush. See *Kalmia*.

California Nutmeg. See *Torreya*.

California Poppy. See *Eschscholtzia*.

Calla. Water Arum. An ancient name of unknown meaning. *Linn. Heptandria-Monogynia.* Nat. Ord. *Araceæ*.

C. palustris, the only species, is an herbaceous marsh plant of but little interest, common in swamps throughout the Northern States. The roots yield an edible starch, and were formerly procured for that article; but they are no longer used for that purpose, and the plant is without special merit. The Calla, so well known as a green-house plant, is a *Richardia*, which see.

Callicarpa. From *kalos*, beautiful, and *carpos*, fruit; referring to the beautiful berries. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Verbenaceæ*.

A considerable genus of low-growing shrubs, mostly tender evergreens. *C. Americana*, a species common from Virginia southward, is a hardy deciduous shrub of great beauty, and one of the most desirable for the lawn or shrubbery bor-

der. In a good soil it grows about four feet high, very branching from near the root, giving the plant a most graceful outline. The flowers are small, inconspicuous, in numerous axillary cymes or clusters. The beauty of the plant consists in its clusters of violet-colored berries, which are exceedingly showy from September until December. It is freely propagated by seed or from cuttings. C. Japonica is also hardy.

Calliopsis. Derived from *kallistos*, beautiful, and *opsis*, the eye; in allusion to the beautiful bright eye of the flower. *Linn. Syngenesia-Polygamia Frustranea.* Nat. Ord. *Compositæ.*

This is a genus of showy annuals, separated from *Coreopsis.* They are of a hardy character, requiring only to be sown in rich earth about the end of March, and afterward thinned out. Those taken up for the purpose may be transplanted, and will afford a later bloom. They usually attain a height of about three feet, and, consequently, should be sown some distance from the margin of the bed. If a very early bloom be desired, a few plants may be raised on heat and transplanted in May. All are American plants, found from Arkansas to Texas.

Calliprora. From *kalos*, beautiful, and *prora*, a front; referring to the front view of the flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

C. lutea, the only species, is a beautiful little yellow-flowering California bulb, the flowers of which are produced in August, in umbels, drooping, on short scapes. Not hardy in this climate. Propagated by offsets.

Callirhöe. Derivation unknown. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

This genus of American plants comprises both annuals and perennials. The former are a showy, free-blooming class, somewhat resembling the Scarlet Linum; the latter produce flowers much larger and very beautiful, but are rarely met. The annual varieties grow readily from seed; the perennials from seed or by division of root.

Callistachys. From *kalos*, beautiful, and *stachys*, a flower-spike. *Linn. Decandria-Monogynia.* Nat. Ord. *Leguminosæ.*

Green-house plants from New Holland, producing beautiful yellow flowers. They grow readily and without trouble under ordinary treatment. Cuttings strike freely in sand, covered with a glass. Introduced in 1815.

Callistemma. China Aster. From *kallistos*, most beautiful, and *stemma*, a crown. *Linn. Syngenesia-Superflua.* Nat. Ord. *Compositæ.*

This genus contains two species, *C. Indica* and *C. hortensis*, the well-known China Aster, the varieties of which are so universally grown. The seed should be sown in March on a gentle heat for the earliest bloom, and others may be sown in the open ground as soon as it is fit to work, to afford a succession of flowers. The first, after being gradually inured to the open air, may be removed to their destined places as soon as danger from frost is past. The soil for them cannot be too rich; on this, and selecting an open situation, rests all the art of obtaining fine flowers. The species were introduced from China in 1731.

Callithruria. Derivation not explained. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of Peruvian bulbs, with yellow flowers, produced on a slender scape before the leaves start, like the Guernsey Lily. They may be grown successfully, with the protection of a frame during winter. Propagated by offsets. Introduced in 1843.

Callitris. From *kalos*, beautiful; referring to the appearance of the whole plant. *Linn. Monœcia-Polyandria.* Nat. Ord. *Pinaceæ.*

A small genus of evergreen, cypress-like trees, allied to *Thuya.* They are natives of New Holland, Barbary, and the Cape of Good Hope. *C. quadrivalvis* is a large tree with straggling branches. It is a native of Barbary, but can be successfully grown from the Carolinas southward. The resin of this tree is used in varnish-making under the name of Gum Sandarach. It yields a hard, durable, and fragrant timber, of a mahogany color; for which reason it is largely used in the construction of mosques and similar buildings in the north of Africa.

Callixene. From *kalos*, beautiful, and *xenos*, a stranger; first discovered on the inhospitable shore of Magellan's Land, so unlikely to have such a plant. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of green-house evergreen climbing shrubs, somewhat resembling the *Lapageria*, to which they are closely allied. The flowers are white, and produced in great abundance. Propagated by division.

Calluna. Heather. From *kalluno*, to adorn; in reference both to the beauty of the Heather, and to its use as a scrubbing-brush or broom. *Linn. Octandria-Monogynia.* Nat. Ord. *Ericaceæ.*

C. vulgaris, the only species, is the well-known "Heather" of Scotland, popularly known as Ling or Common Heath; a low-growing, much-branched little shrub, with very pretty rose-colored, purple, or white, fragrant flowers, produced in crowded axillary clusters, forming one-sided (mostly) spikes or racemes. This beautiful little plant has become naturalized in a few localities in this country. It is reported at Tewksbury, Mass., and at Cape Elizabeth, Maine. It is also found sparingly in Nova Scotia and Newfoundland.

Calochortus. From *kalos*, beautiful, and *chortus*, grass; referring to the leaves. *Linn. Hexandria-Polygynia.* Nat. Ord. *Liliaceæ.*

This genus contains some of our gayest and most beautiful half-hardy bulbs. They were found in Columbia and California by the intrepid and unfortunate Douglas, of Columbia. The flowers somewhat resemble the Tulip in shape. Colors are white, purple, and yellow, most of them richly spotted. They grow freely in light, sandy loam, should have slight protection in winter, and succeed well grown in pots. They flower from July until September. Propagated by offsets. Introduced in 1826.

Calophanes. From *kalos*, beautiful, and *phaino*, to appear. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Acanthaceæ.*

A fine hardy herbaceous plant from California, bearing lively blue flowers, of little merit as a border plant, as the flowers are too small to be effective. Introduced in 1832.

Calopogon. From *kalos*, beautiful, and *pogon*, a beard; the lip being beautifully fringed. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of tuberous Orchids, found in swampy situations on the south side of Long Island and many other parts of the United States. The flowers are borne on a scape growing about one foot high; color bright purple, quite conspicuous. Like most of our native Orchids, it improves by cultivation. Shady situations and a light, fibrous soil will suit it.

Caltha. Marsh Marigold. A contraction of *kalathos*, a goblet; referring to the shape of the

flower. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

C. palustris is an indigenous hardy herbaceous perennial, common in swamps and marshy places throughout the Northern States. The flowers are bright yellow, borne in large clusters, in April or May. The leaves are highly esteemed as a pot herb. The plant is frequently called Cowslip, a name that properly belongs to *Primula veris.*

Calycanthus. Sweet-scented Shrub, Strawberry Shrub, Carolina Allspice. From *kalyx*, a cup or calyx, and *anthos*, a flower; from the closed cup which contains the pistils. *Linn. Icosandria-Polygynia.* Nat. Ord. *Calycanthaceæ.*

C. floridus is a native deciduous shrub, remarkable for the scent of the flowers, (which is commonly thought to resemble that of ripe fruit,) as well as for their peculiar color. It is a native of the Southern States, perfectly hardy, and will grow in almost any soil or situation. Propagated by seeds or offsets. The bark of this species is used in the adulteration of cinnamon. There are other species and varieties, but this is the more conspicuous and desirable.

Calystegia. Bracted Bindweed. From *kalyx*, a calyx, and *stega*, a covering; in reference to the calyx being hid by two bracts, as is the case with a section of *Bindweeds. Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ.*

This somewhat extensive genus includes our common hedge Convolvulus, but only a few species are considered interesting. *C. pubescens*, from China, a hardy double-flowered variety, is useful as a screen, or for covering unsightly places, the chief objection to it being its tendency to get beyond control. Propagated by division of root in spring.

Camarotis. From *camara*, an arched roof; in reference to the form of the lip or labellum. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of East Indian and Brazilian Orchids, bearing pale rose flowers, with yellow lip, produced on pendulous racemes in March and April. They require a warm, moist house, and need but little rest. They are increased by division. Introduced in 1818.

Camassia. Wild Hyacinth. From *quamash*, so called by the Indians, who eat the bulbs. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Allied to the Scilla or Squill. *C. esculenta* resembles the common blue Hyacinth, but is larger, its leaves being about a foot long, very narrow, and grooved down the inside. Its flower stalks grow from one to two feet high, and bear large, showy purple flowers. This plant grows in moist grounds from the Mississippi River to the Pacific Ocean, and its bulbs form a staple food of the Indians, the different tribes visiting the plains for the purpose of collecting them, immediately after the plant has flowered. The occasion is one of their feasts, in which the women take an important part, as the labor of digging devolves entirely upon them. The unmarried females endeavor to excel each other in the quantity they collect, their fame as future good wives depending upon their activity upon the *Quamash* plains. The roots are cooked by digging a hole in the ground and paving it with large stones, upon which a fire is lighted and kept up until they are red hot, when they are covered with alternate layers of branches and roots till the hole is full. It is then covered with earth, and a fire kept burning upon it for

twenty-four hours, when the roots are taken out, dried, or pounded into cakes for future use.

Camellia. Named in honor of *George Joseph Kamel*, or *Camellus*, a Moravian Jesuit and Eastern traveler. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Ternstræmiaceæ.*

This well-known genus is so closely allied to the tea family as to be distinguished from it with great difficulty, the great difference being in the number of parts and position of the flower. The number of true species of this splendid genus is very limited, not exceeding six or seven, and only one or two of them are thought worth cultivation, except for botanical purposes. The hundreds of beautiful varieties which grace our collections, possessing at once the most rich and vivid colors in their flowers, and the noblest grandeur in the whole aspect of the plants, fully compensate for this scarcity of species, and leave us little to desire that may not reasonably be expected from the same skill and perseverance which have already produced such splendid results. *C. Japonica* may be regarded as the parent of the whole race of cultivated Camellias. It is a native of China and Japan, where it attains the altitude of a tree, and is much employed by the natives of those countries in decorating their gardens. Camellias delight in an even temperature, rapid fluctuation being injurious at any season, and the same regular and equable amount of both light and moisture should prevail for the whole year, that in effect the difference between the summer and winter seasons may be lessened as far as practicable. For this purpose the plant should be kept in summer in a cool green-house, moderately shaded from the sun. When the plants are in a growing state they require abundance of water, both at the roots and over the leaves. After making their growth, and setting their flower-buds, they require less attention than at any other period. Moderate supplies of water and a situation as cool as can be afforded without danger of frost or nipping currents of air are best. About the middle of March is the commencement of the ordinary growing season, when a higher temperature and plenty of water to the roots should be given them. Potting should be done when the greatest benefit will be conferred on the prospective shoots, which will be before the roots have made much progress, or as soon after blooming as may be. A distinction in the quality of soil to be used should be made in accordance with the state of each plant, bearing in mind that they grow much stronger in loam, but do not usually produce flowers so freely, and *vice versa* for healthy specimens; and under ordinary circumstances an addition of leaf mould seems most advisable, introducing a small proportion of sand, and using the soil quite rough. At this time it should be determined at what period the plants will be required to bloom in the ensuing season, whether early or late, to accord with which the plants may either be forced or retarded. They will bear almost any amount of heat while growing, but after the formation of the flower-buds it must be withheld, as the slightest application then, instead of hastening their development, will infallibly cause them to fall off. Hence, the only way to "force" Camellias into early flowering in fall and winter is to keep them at a high temperature while growing in spring. A temperature of about 65° is the most proper for such as are desired to flower in the following winter; 45° or 50° degrees will be sufficient for the next,

or those which may be said to bloom naturally, while the portion required to furnish flowers for the late spring months should be placed out of doors. This treatment must be continued until the new growths are completed, and the incipient flower-buds can be discovered, when a cool, shaded situation should be provided for each section as they require it; observing to supply them bountifully with water during the whole period of growth, with an occasional sprinkling over the foliage, and moderate shade. Any situation secure from frost will preserve them through the winter, and as the flowers expand, the plants may be removed wherever their presence may be deemed most ornamental. Several fine varieties have been raised from seed during the past few years in Boston, two or three of which have been awarded the highest honors. Not a few of the best Camellias in cultivation have been raised in this country. The usual mode of propagation is by cuttings, or by grafting or inarching, either of which should be done as soon as the new wood is firm enough to handle. The subjects operated on should be placed in a close, humid atmosphere, such as is afforded by a common hand-glass placed over a tan bark bed. The union takes place in a few weeks, and with encouragement the scions will form fine plants in one season.

Campanula. Bell Flower. The diminutive of *campana*, a bell; literally, a little bell. *Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

This extensive and well-known genus consists of more than two hundred species, including annuals, biennials, and perennials. Some of the hardy perennials are dwarf plants, producing a profusion of flowers, which renders them particularly adapted for rock-work or growing in pots. *C. pyramidalis* is a tall-growing variety, at one time a very popular plant, and some of the old gardeners still cling to it with a peculiar fondness. When grown in pots it will require frequent repotting, which will bring it to an enormous size. When well grown it is a splendid plant. *C. medium* (Canterbury Bell) is a very ornamental garden flower of the easiest culture, with double and single varieties, bearing blue, red, purple, and white flowers. Like other biennials, it may either be sown where it is to remain, any time after midsummer, or may be sown in beds in spring for transplanting. *C. rotundifolia* (Harebell) is the most beautiful of our native species. Some of the species are grown in France and Italy as esculent roots. All succeed well in any good soil, and are propagated freely by seeds or division.

Campsidium. Derivation unknown. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Bignoniaceæ.*

C. filicifolium is a beautiful climber from Chili. The foliage is of a dark, shining green color, and resembles the fronds of some Ferns. The flowers are small, of a rich orange color. It is a rapid grower, well adapted for covering rafters or back walls in the green-house. In the woods, in its wild state, it grows forty to fifty feet high, covering the tops of the trees in a most graceful manner.

Campylobotrys. From *kampylos*, a curve, and *botrys*, a bunch; alluding to the form of the inflorescence. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A genus of very beautiful green-house shrubs, natives of Brazil. They are more remarkable for their glossy foliage than for the beauty of the flowers. *C. regalis* has elliptic leaves, with

a satiny luster and a rich bronzy-green color. This, with one or two other species, has been introduced into the green-house for the rare beauty of the foliage. They require a very warm house for perfection of growth. Propagated by cuttings. Introduced in 1859.

Canada Thistle. See *Cirsium.*

Canary Bird Flower. See *Tropæolum.*

Canary Grass. See *Phalaris.*

Cancer Root. A common name applied to the genus *Epiphegus*, and also to *Conopholus*, on account of their supposed medicinal virtues.

Candytuft. See *Iberis.*

Canna. Indian Shot. The Celtic name for a *cane* or reed. *Linn. Diandria-Monogynia.* Nat. Ord. *Marantaceæ.*

This is an extensive and very interesting genus of tender herbaceous perennials. Most of the species have showy crimson, orange, and yellow flowers. They are usually grown for the remarkable beauty of their foliage, which is highly ornamental; hence they are favorite plants in cultivation, and produce a striking effect either singly or grouped in beds upon the lawn, in the summer months. If planted in a rich, deep soil, and freely watered, some of them will grow ten feet during the season, and from a single tuber make a clump three or four feet in diameter. Beauty is not their only claim to consideration, some of the species, as *C. edulis*, being grown extensively in Peru and the Sandwich Islands as a vegetable. Arrow-root is also made from this species. Propagated by seeds, or more commonly by division of tubers, which should be kept during the winter like Dahlias.

Cannabis. Hemp. So called from *ganeh*, its Arabic name, and from the Celtic appellation *can*, reed, and *ab*, small. *Linn. Diœcia-Pentandria.* Nat. Ord. *Cannabinaceæ.*

Of the two species that compose this genus, the truly important one is *C. sativa*, a native of India, which furnishes the Hemp of commerce. The Hemp plant is an annual, growing from four to eight feet high; in very hot climates it frequently grows twenty feet high. The flowers are of separate sexes on different plants, the males being produced in racemes, and generally crowded together towards the top of the plant or end of the branches; the females are in short spikes, their calyx consisting merely of a single sepal, rolled around the ovary, but open on one side, and they have two hairy stigmas. The fruit (commonly known as "Hemp Seed") is a small, grayish-colored, smooth, shining nut, containing a single oily seed. For the production of good fiber the seed is sown close, so as to produce straight stems without branches. The harvesting takes place at two periods; the male being pulled as soon as it has done flowering, and the female not until the seeds are ripe. After gathering it undergoes treatment similar to that given flax to separate the fiber. In Persia and other very hot countries the plant furnishes a soft resin, which is collected by the coolies, and is smoked like tobacco, or pounded into pulp, so as to make a drink, both being stimulant and intoxicating. The Asiatics are passionately addicted to the use of this means of intoxication, as the names given to the Hemp show: "leaf of delusion," "increaser of pleasure," etc.

Canterbury Bells. See *Campanula medium.*

Cantua. From *cantu*, the name of one of the species in Peru. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

CAO

A genus of green-house evergreen shrubs from Peru. The foliage is fleshy, the flowers large and showy, produced in terminal corymbs, the colors being white, scarlet, yellow, and blue. They require the same treatment as the Fuchsia. *C. buxifolia* is the Magic Tree of the Peruvian Indians, and was formerly used to decorate their houses on feast days. All the species are readily increased by cuttings. *C. coronopifolia*, a native of South Carolina, is *Gilia coronopifolia* of Ruiz and Pavon.

Caoutchouc. The elastic, gummy substance known as India Rubber, which is the juice of various plants growing in tropical climates in different parts of the world. It is chiefly obtained from the *Ficus elastica, Castillon elastica, Urceola elastica*, etc. The milky juice of *Siphocampylus caoutchouc* is quite different from the Caoutchouc of commerce.

Cape Bulbs. A term employed to designate a large number of bulbs from the Cape of Good Hope, that require the protection of a frame to be grown in this latitude. They are not sufficiently hardy to endure our winters without protection. Among the class may be found *Ixias, Babianas, Sparaxis, Tritonias, Geissorhiza*, etc.

Cape Jessamine. See *Gardenia florida*.

Caper. See *Capparis*.

Capparis. Caper-tree. From *kabar*, the Arabic name for Capers. *Linn. Polyandria-Monogynia.* Nat. Ord. *Capparidaceæ.*

An extensive genus of tender or half-hardy climbing or trailing plants. The best known of the species is *C. spinosa*, a native of the south of Europe. In habit it resembles the common bramble. The Capers are the buds, which are gathered just before expanding and pickled. In Italy the unripe fruit is sometimes pickled in vinegar in the same manner as the buds. Capers are chiefly imported from Sicily, though they are extensively grown in the south of France.

Capsicum. Chili Pepper. From *kapto*, to bite; referring to its pungency. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

An extensive genus of tender annual and biennial plants, natives of the East and West Indies, China, Brazil, and Egypt. *C. annuum* is the common garden Pepper, a native of India, from which many varieties have originated. *C. frutescens*, a native of Chili, is the species that furnishes the Cayenne Pepper of commerce, and is also used in the preparation known as *Pepper Sauce*. *C. grossum*, a native of India, is the Bell Pepper of our gardens.

Caraway. See *Carum*.

Cardamine. Ladies' Smock, Cuckoo Flower. From *kardamon*, water-cress; referring to the acrid flavor. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

An extensive genus of hardy herbaceous perennials, common in many parts of the United States, Europe, and Northern Asia. *C. pratensis* is popularly known as Ladies' Smock or Cuckoo Flower. It is a very pretty meadow plant, with large lilac flowers, common in New Jersey, North and West. A double variety of this species is sometimes found growing wild, which is remarkably proliferous, the leaflets producing new plants where they come in contact with the ground, and the flowers, when they wither, sending up a stalked flower bud from their centers. The leaves of some of the species are used as salads.

Cardamom. See *Amomum*.

Cardinal Flower. See *Lobelia cardinalis*.

CAR

Cardiospermum. From *kardia*, a heart, and *sperma*, seed; in allusion to the shape of the seeds. *Linn. Octandria-Trigynia.* Nat. Ord. *Sapindaceæ.*

Of this small genus only one species is grown as an ornamental plant, viz., *C. Halicacabum*, which is a rapid growing, handsome climber, remarkable for an inflated membranous capsule, from which it receives its common name, *Balloon Vine*. It grows readily from seed. Introduced from India in 1504.

Carduus. Thistle. From *ard*, the Celtic word for a prickle or sharp point; referring to the spines of the Thistle. *Linn. Syngenesia-Polygamia-Æqualis.* Nat. Ord. *Compositæ.*

Some of the species are very ornamental, though they are many of them tall, robust-growing plants, which require a great deal of room, and are too large for a small garden. *C. Marianus*, the Holy Thistle, is well marked by the white veins on its large, shining leaves, fabled to have been produced by a portion of the milk of the Virgin Mary having fallen on them. They are annuals, growing freely from seed.

Carex. From *careo*, to want; the upper spikes being without seeds. *Linn. Monœcia-Triandria.* Nat. Ord. *Cyperaceæ.*

This genus includes more than a thousand species, widely distributed over the temperate and Arctic regions. They are all perennial grasses; a few species handsome plants for the green-house, and useful for basket work and aquariums. They are usually found growing in bogs, marshes, or moist woods, where they yield a very inferior quality of grass. *C. remota* is a very elegant plant. *C. Fraseri* is the handsomest species of the genus, resembling at a short distance, when in flower, one of the *Liliaceæ*. The leaves of several of the species are used for seating chairs, and various other purposes for which we use the common Flag. There are more than three hundred species in this country, all of which are without interest except to the botanist.

Caricature Plant. See *Graptophyllum*.

Carludovica. Named after *Charles IV.* of Spain, and *Louisa*, his queen. *Linn. Monœcia-Polyandria.* Nat. Ord. *Pandanaceæ.*

A genus of plants belonging to the Screw Pine family, but more closely resembling the Palms. Some of them have long, climbing stems, sending out aërial roots, which fasten upon the trunks of trees or hang down like ropes, while others are stemless and form dense thickets. *C. palmata* is one of the more interesting species. Its leaves are shaped and plaited like a fan, and are borne on long, slender stalks. They are of tolerably large size, and deeply cut into four or five divisions, each of which is again cut. It is from the leaves of this species that the well-known Panama hats are made. The leaves are cut when young, and the stiff parallel veins removed, after which they are slit into shreds, but not separated at the stalk end, and immersed in boiling water for a short time, and then bleached in the sun. This species is also exceedingly useful for any ornamental or decorative purpose. *C. plicata* is a very interesting climbing species, with foliage similar to that of *C. palmata*, but with much shorter leaf-stalks. There are several other species useful for decorative purposes, and valuable from the fact that they will succeed in any out-of-the-way corner, where most other plants would perish. This genus is common throughout the shady thickets of Panama, and along the coast of New Grenada and Ecuador. They are increased from suckers or from seed.

Carnation. See *Dianthus caryophyllus*.

Carolina Allspice. A popular name of the *Calycanthus*, or Sweet-scented Shrub.

Carolina Jasmine. See *Gelsemium*.

Carpinus. Hornbeam, Iron Wood. From the Celtic *car*, wood, and *pinda*, head; the wood being used for the yokes of cattle. *Linn. Pentandria-Monogynia.* Nat. Ord. *Corylaceæ.*

C. Americana, the only representative of this genus in our woods, is a low-growing tree of compact form, and a very rigid trunk. It is particularly handsome in autumn, because of its richly colored foliage. It is found in nearly all parts of the country, but is not plenty in any section. The wood of this tree is exceedingly hard and close-grained, and is well suited for any work requiring great hardness and strength.

Carpolyza. From *karpos*, fruit, and *lyssa*, rage; in reference to the three-celled fruit, or seed-pod, opening like the mouth of an enraged animal. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A genus of South African bulbs, the only species being *C. spiralis*, which is a very pretty little plant. The leaves and flower scape are twisted, from which fact it derives its specific name. The flowers are white, sepals pink, tipped with green. It requires protection in winter, or may be kept dry and grown in pots, starting them about the first of February. They are propagated by offsets. Introduced in 1791.

Carrot. *Daucus carota.* The wild Carrot, indigenous to Great Britain and many other parts of Europe, and so extensively naturalized in this country as to become one of the most troublesome pests of the farmer, has generally been supposed to be the parent of the many varieties of the common garden Carrot, which has been under cultivation from time immemorial. Dioscorides describes accurately the Carrot, both as a wild plant and as cultivated as an esculent root. The parentage was not questioned until Miller, the celebrated English gardener and botanist, undertook to improve the wild Carrot by cultivation, and signally failed in his many and varied attempts. Others have experimented at different times, with no better success. The prevailing opinion now is that the garden Carrot is a distinct species, or was obtained under circumstances entirely different or unknown at the present day. The Carrot was introduced into England, in about its present form, by the Dutch, during the reign of Queen Elizabeth, and soon thereafter became a favorite vegetable, and a useful as well as a profitable field crop. Careful selection has gradually improved the quality, in certain respects, of the Carrot, during the past hundred years, and good cultivation is now required to keep the varieties up to their proper standard.

Carum. Caraway. From *Caria*, in Asia Minor, where it was first discovered. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

A small genus of hardy biennials, but one species of which, *C. Carui*, is of any special interest. This is a native of Europe, and produces the Caraway seeds, which contain an aromatic volatile oil, and are used in flavoring. The plants are of the simplest culture, requiring only to sow the seeds where the plants are wanted to grow.

Carya. Hickory. The Greek name for the Walnut. *Linn. Monœcia-Polyandria.* Nat. Ord. *Juglandaceæ.*

A well-known genus of hardy deciduous trees,

confined wholly to North America. *C. alba* is the common Shell-bark or Shag-bark Walnut, so called on account of the rough, shaggy bark of the trees, peeling off in long, narrow strips from large trees. This species furnishes the best Hickory-nuts. *C. olivæformis* is the Pecan-nut tree, common from Illinois southward. It is a large and beautiful tree. Its delicious nuts are well known. *C. porcina* is the Pig-nut, one of the most valuable as a timber tree, but the fruit is worthless. *C. amara* is the Bitter-nut or Swamp Hickory-nut. *C. sulcata* is the Western Shell-bark Hickory, remarkable for the size of the nut, which has a very thick shell, but is of excellent quality. *C. tomentosa*, common in the West and South, bears the largest nuts of any of the species, the size, however, being at the expense of the quality. The timber of all the species is valuable for any purpose where strength and elasticity are required.

Caryota. From *karyon*, a nut. The Greeks first applied the name to their cultivated Date. *Linn. Monœcia-Polyandria.* Nat. Ord. *Palmaceæ.*

C. urens, commonly called Fish-tail Palm, is the most prominent species of this genus. It is a beautiful tree, growing from sixty to eighty feet high, with a trunk a foot in diameter, producing many pendulous spikes of flowers, which are succeeded by strings of succulent globular berries, dark red when ripe, and are very sharp and acrid to the taste. In Ceylon it yields a sort of liquor, sweet, wholesome, and no stronger than water. It is taken from the tree two or three times a day, each yield from a large tree being from three to four gallons. When boiled down it makes a coarse brown sugar called jaggory. When the tree has come to maturity, there comes out a bud from the top; that bud the natives cut and prepare by putting salt, pepper, lemons, garlic, leaves, etc., over it, which keeps it from ripening. They daily cut off a thin slice from the end, and the liquor drops into a vessel, which they set to catch it. The buds are most delicious to the taste, resembling Walnuts or Almonds. The species are natives of the Indies, and are grown in the green-house, where they succeed well with the same treatment as other tropical Palms require.

Cashew-Nut. See *Anacardium.*

Cassia. Senna. From the Greek name of a plant, *Kassian*, of the Bible. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

An extensive genus of hardy herbaceous and green-house perennials, found scattered over nearly all parts of the globe. Many of the species are well known, and considered of great importance for their medicinal properties. The leaflets of several of the species constitute what is known in medicine as Senna leaves. Those from *C. acutifolia* and *C. obovata*, African and East Indian species, are the most highly-esteemed. The leaves of *C. Marilandica*, wild Senna, a native of the Middle and Southern States, have, to some extent, the same properties, and are sometimes used as a substitute for the officinal Senna. This species may be justly regarded one of our most valued plants for the border. It grows from three to four feet high; foliage a beautiful deep green, not unlike the finer Acacias; flowers bright yellow, produced in short axillary racemes, continuing a long time in succession. Some of the road-sides of Long Island are bordered with this plant, and no public park, with all that art can bestow upon its drives in the way of ornamentation,

can compare in taste, simplicity, and beauty with these roadsides. *C. nictitans*, Wild Sensitive Plant, another native species, is a very beautiful hardy annual, common on our roadsides, growing about six inches high, and in appearance almost identical with the Sensitive Plant, *Mimosa pudica*, and well worth cultivating for its beautiful foliage. *C. chamæcrista*, commonly known as Partridge Pea, is a very pretty species, common in the Southern States.

Castanea. Chestnut. From a town of that name in Thessaly. *Linn. Monœcia-Polyandria.* Nat. Ord. *Corylaceæ.*

The Chestnut Tree is well known because of the nuts, which are universally esteemed. There are two species indigenous to this country. The common Chestnut is *C. vesca*, found throughout the States. *C. pumila* is a low-growing tree or shrub, common southward, and produces a smaller nut, not flattened, known as Chinquapin. The Spanish Chestnut, a variety of *C. vesca*, differing from our native Chestnut mainly in the size of the fruit, is a native of Asia Minor, introduced at a very early date. This tree grows to an immense size. A tree near Queens, L. I., planted nearly one hundred years ago, has a trunk almost twelve feet in circumference, and is about fifty feet high, with immense spreading branches. It is one of the noblest shade trees to be found in this country. A species of late introduction from Japan promises to become one of our most useful, as well as ornamental trees, or, more properly, tall shrubs. The fruit of this species was received in New York a few years since in a consignment of goods from Japan. The merchant receiving the same, seeing the nuts were of such excellent quality, fully equal to those of our native species, and as large as the Spanish Chestnut, attempted the growing of them, and with remarkable success. In five years they commenced to fruit, and are now bearing profusely. The shrub is of an ornamental character, suitable for the lawn. The fruit or nuts are borne within two feet of the ground. Those who have had a favorable opportunity to judge of its character predict its early adoption as a hedge plant, for which purpose it seems well adapted. In addition to its value as an ornamental hedge, it would undoubtedly prove valuable for its yield of nuts.

Castor Oil Bean. See *Ricinus.*

Casuarina. Beef-wood. Supposed to be named from the resemblance the leaves bear to the feathers of the *Cassowary. Linn. Monœcia-Monandria.* Nat. Ord. *Casurinaceæ.*

A genus of very curious trees, constituting of themselves a distinct family. They have very much the appearance of gigantic Horse-tails (*Equisetaceæ*), being trees with thread-like, jointed, furrowed branches, without leaves. The flowers are not of a showy character. These plants are met most abundantly in tropical Australia, and occasionally in the Indian Islands, New Caledonia, etc. In Australia, from their somber appearance, they are planted in cemeteries. The timber furnished by these trees is valuable for its extreme hardness. From its red color, it is called in the islands Beef-wood. The several species are highly esteemed for their uses in the mechanic and useful arts. A few of them have been introduced in green-houses for their singular appearance.

Catalpa. Indian Bean. The aboriginal name. *Linn. Diandria-Monogynia.* Nat. Ord. *Bignoniaceæ.*

The Catalpa is a well-known deciduous tree, native of the Southern States, and one of our most beautiful shade trees, of medium size, bright yellowish green, heart-shaped leaves, and remarkable for its numerous loose panicles of white flowers, spotted with orange and purple. The trees, when young, make a rapid growth, and are particularly valuable for the lawn, being entirely exempt from the ravages of insects and caterpillars. *C. bignonioides* is our only species. The Indian Catalpa, *C. Himalayensis*, a native of Asia, is a remarkable shrub, growing from six to eight feet high, with a diameter of from eight to ten feet. "The crown is like a roof of leaves, laid with the precision of pointed slate, and the play of light on its golden-green head is beautiful." The objection to the introduction of this beautiful shrub is the fear of its not being hardy. There are several specimens on the park around Garden City Hotel, L. I., that seem perfectly hardy, having been planted a number of years, without being injured in the least by cold. There are several other species, all of an ornamental character. The Catalpa will thrive in almost any soil or situation, and does quite well in a poor soil, which makes it more hardy. Propagated by seeds or from root cuttings.

Catananche. From *katanangke*, a strong incentive; in reference to an ancient custom among the Greek women of using it in love potions. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A small genus of annuals and hardy herbaceous perennials. *B. cærulea* is a perennial species, with slender stalks, long, narrow leaves, and large heads of sky-blue flowers. It is a native of the south of Europe. From this species several varieties have been produced with white and double flowers, all very desirable for the open border. They are increased by division or from seeds. *C. lutea*, an annual species with yellow flowers, is a native of Candia.

Cat-brier. See *Smilax.*

Catchfly. See *Silene.*

Caterpillars. See *Scorpiurus.*

Cat-Mint. See *Nepeta.*

Catnip. See *Nepeta.*

Cat-Tail. One of the popular names of Pearl Millet.

Cat-Tail Flag. See *Typha.*

Cat's Tail Grass. One of the common names of the genus *Phleum*, Timothy or Herd's Grass.

Cattleya. Named after Mr. Cattley, a distinguished patron of botany. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

What the Rose and Carnation are among garden plants, the Cattleya is among Orchids, preeminently beautiful. Not a species but possesses claims of the strongest nature on the culturist's attention, either for its delicate loveliness or the rich and vivid coloring of its large and handsome flowers. They are natives of the temperate parts of South America, and in cultivation are found to succeed in a lower temperature than is necessary for the majority of plants of the same order. They will grow either on cork, billets of wood, or in pots of sphagnum, carefully drained and moderately watered at all times; indeed, the damp atmosphere of the house is nearly sufficient for them through the winter; and if about 50 degrees of heat is steadily maintained through this period, with an increase of about 10° in summer, the plants will be found to grow vigorously, and consequently flower in perfection. The colors of the flowers

run through all the shades of white, rose, rosy-lilac, crimson, and carmine, nor is even yellow absent. Where all are beautiful it is scarcely necessary to select. The following, however, should be in every collection: *crispa*, *Harrisonіæ*, *intermedia*, *labiata*, *Loddigesii*, *Mossiæ* and its numerous varieties. All the *Cattleyas* are increased by division.

Cauliflower. *Brassica oleracea cauliflora.* The Cauliflower is the most delicate and delicious of the genus *Brassica*. Its early history is entirely unknown. It is supposed to have originated in Italy. It is mentioned by Gerarde in 1597, then very rare in England, and it was not brought to any degree of perfection, or grown for the market, until about 1700. From that period until the present, there has been a slow, but marked and steady improvement in the size and quality of this vegetable. To the English and Dutch gardeners we are chiefly indebted for the perfection the Cauliflower has attained. Heads of immense size are now grown for the market. It is by no means uncommon to see a head perfectly sound and smooth, fully ten inches in diameter, and, contrary to the usual rule, size is not obtained at the expense of quality, the larger, if differing at all, being more tender and delicious. The varieties of the Cauliflower are numerous. In this work we can not point out the best. Locality and selection cause variations more marked than even the varieties. The most popular in the United States at this time are Snowball and Erfurt for early, and Algiers for late. For the perfection of the Cauliflower a deep, rich, loamy soil is required, a low, moist situation being preferable. It will not succeed in dry ground. Where irrigation can be employed, the greatest benefits will be derived; in fact, a large crop with irrigation will be secured, when without it the result would be total failure.

Caulophyllum. The generic name of the plant commonly known as Blue Cohosh, sometimes called Pappoose-root.

Cayenne Pepper. See *Capsicum*.

Ceanothus. Red Root, New Jersey Tea. An obscure name in Theophrastus, probably misspelled. *Linn. Pentandria-Monogynia.* Nat. Ord. *Rhamnaceæ*.

A genus of low-growing shrubs, one of the most conspicuous and best known being *C. Americanus*, a species common in dry woodlands. This shrub attained considerable notoriety during the American Revolution, on account of its leaves being dried and used as a substitute for tea, a practice not yet wholly discontinued. The roots are used in dyeing wool of a Nankeen or cinnamon color. There are several species from Mexico and South America, that have lately been introduced into the green-house, and regarded with favor. Their season of flowering is too short to warrant very general cultivation.

Cedar. See *Juniperus*.

Cedar of Lebanon. See *Cedrus*.

Cedrus. The Cedar. Found plentifully on the banks of a brook in Judea, named Kedron; whence the name. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Pinaceæ*.

This genus consists of a few species that have been separated from *Abies* and *Juniperus*, their characteristics being their evergreen leaves, disposed in bundles, or fasicles, and their upright cones. The Cedar of Lebanon is one of the most prominent species, so often mentioned in Sacred History. It is one of the most beautiful ever-

green trees for lawn decoration, though rarely met. There is a noble specimen on the grounds of W. F. D. Manie, at Queens, L. I. It is upward of thirty feet high, with a trunk four and a half feet in circumference. There was a still larger specimen a few years since on the grounds of the late Geo. C. Thorburn, at Astoria, L. I. The species are natives of Asia and Africa.

Celandine. The popular name of the genus *Chelidonium*, a common door-yard weed.

Celastrus. Staff Tree, Bitter Sweet. From *kelas*, the latter season; referring to the fruit hanging on the trees all winter. *Linn. Pentandria-Monogynia.* Nat. Ord. *Celastraceæ*.

This genus consists of trees, shrubs, and climbers. Our native species, *C. scandens*, is a handsome twining shrub, remarkable for its orange-colored capsules, and the scarlet coating of the fruit. It is planted as an ornamental climber, and is known by its popular name of *Bitter Sweet*. Propagated by seed and suckers.

Celeriac. See *Celery*.

Celery. *Apium graveolens.* Celery is a native of England, and is found in its wild state in marshy places and ditches near the coast. It is a biennial. There are in its wild state two kinds, the red and the white-stalked, of both of which there are numerous garden varieties, the cultivation of which is carried on to a very great extent, both here and in Europe. Celeriac, or Turnip-rooted Celery, is a distinct variety of the preceding. Its peculiarity consists in the root, which closely resembles that of a turnip, and is the part eaten. It is more hardy than the common Celery, and can be preserved for use much later in the spring. It is but little grown except in France and Germany, where it is employed as a vegetable and as a salad. It is usually boiled until tender, and then slightly pickled in vinegar.

Celosia. From *kelos*, burnt; in reference to the burnt-like appearance of the flowers of some of the species. *Linn. Pentandria-Monogynia.* Nat. Ord. *Amaranthaceæ*.

These are ornamental or curious plants. Only one or two species, however, are regarded as sufficiently ornamental to be included in ordinary collections. One of these, *C. cristata*, the common Cockscomb, is almost universally grown. To be grown well the seed should be sown in March, in the green-house or hot-bed. As soon as the young plants can be handled safely, they should be placed singly in small pots, filled with the same kind of soil in which they were started. In these they should remain until symptoms of flowering appear, when they may be changed into larger pots or turned out into the border, where they should have a rich soil, such as loam and rotten manure, in equal parts; then, with a liberal supply of liquid manure, flower-heads of enormous size will be obtained. It is on this account that small pots are recommended for the young plants up till the appearance of the flowers; for if the roots be allowed much space at this period, the stem naturally increases in height without a compensating increase in the size of the "comb." This species was introduced from Asia in 1570, and from it florists have produced a great number of varieties.

Celtis. Nettle Tree, Hack-berry, Sugar-berry. An ancient name for the Lotus. The fruit of the European Nettle Tree is supposed to have been the food of the *Lotophagi*. *Linn. Polygamia-Monœcia.* Nat. Ord. *Ulmaceæ*.

CEN

A genus of hardy deciduous, low, or medium-sized trees, of an ornamental character. Several of the species and their varieties are common in the Southern and Western States, where they have received the various popular names above given.

Centaurea. The classical name of a plant fabled by Ovid to have cured a wound in the foot of Chiron made by the arrow of Hercules. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Compositæ.*

An extensive genus of hardy herbaceous perennial and annual plants, varying in height from one to five feet, and of nearly every shade of color from yellow to red, blue, or deep purple. As they continue to bloom for a long time, they are well suited for the margin of borders in the flower garden, and some of the dwarf species may be even admitted into beds. The perennial kinds grow in almost any description of soil, nor are the annuals more particular; they merely require to be sown where they are to remain, being afterward thinned to the proper distances from each other. *C. candidissima* and *C. gymnocarpa* are natives of the Levant, and are most valuable border plants, their leaves being heavily clothed on both sides with a white, downy covering, which gives them a striking aspect. Propagated by seed sown in January or February in a hot-bed.

Centauridium. Origin of name unknown. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Compositæ.*

The only species of this is *C. Drummondi*, a Texas plant, free flowering, and succeeding well in a light soil. Color bright orange. A hardy annual, growing freely from seed.

Centranthus. From *kentron*, a spur, and *anthos*, a flower; referring to the spur-like process at the base of the flower. *Linn. Monandria-Monogynia.* Nat. Ord. *Valerianaceæ.*

A small genus of hardy annuals from Grenada, and herbaceous perennials from the south of Europe. They are mostly of compact habit, free flowering, and very pretty. The annuals are well adapted for rock-work or ribbon borders, and grow freely in common garden soil. Introduced in 1849.

Centropogon. From *kentron*, a spur, and *pogon*, a beard; in reference to the fringe which envelops the stigma. *Linn. Pentandria-Monogynia.* Nat. Ord. *Lobeliaceæ.*

A small genus of very handsome herbaceous perennials from Surinam and Guatemala. One of the species bears edible fruit. *C. tovariensis* is a very beautiful plant for the green-house, having rosy-crimson flowers, similar in form to the Lobelias, but of larger size, produced singly on short axillary peduncles. They are increased by division or from seed. Introduced in 1786.

Century Plant. See *Agave.*

Cephalotus. From *kephalotes*, headed; its filaments of stamens are capitate. *Linn. Dodecandria-Hexagynia.* Nat. Ord. *Cephalotaceæ.*

A genus of very singular dwarf Pitcher Plants. *C. follicularis*, the only species, is a native of swampy places in King George's Sound. It has a very short or contracted stem, with spoon-shaped stalked leaves, among which are mingled small pitcher-like bodies, placed on short, stout stalks, and closed at the top with lids like the true Pitcher Plants (*Nepenthes*). These pitchers are of a green color, spotted with yellow or brown, and provided with hairs. The flowers are white, small, and produced on a long spike. Propagated by offsets. Introduced in 1822.

Cerastium. Mouse-ear Chickweed. From *keras*, a horn; because many of the species have capsules like an ox's horn. *Linn. Decandria-Pentagynia.* Nat. Ord. *Caryophyllaceæ.*

CER

Of this somewhat extensive genus only a few of the species are worthy of cultivation, but none of the annuals. Some of the hardy trailing species are quite ornamental when used for edgings or rock-work. Propagated by division of the roots or by seeds. Introduced in 1814.

Cerasus. Cherry. From *Cerasus*, a town of Pontus, in Asia, whence the Cherry was brought to Rome by Lucullus. *Linn. Icosandria-Monogynia.* Nat. Ord. *Drupaceæ.*

A genus of hardy deciduous trees and shrubs, the species and varieties including some of our most ornamental trees for the lawn, as well as highly prized fruit trees for the orchard. The numerous varieties of cultivated Cherries are supposed to have originated from *C. avium* and *C. vulgaris.* Those belonging to *C. avium* are best represented by the Bigarreau and Black Heart varieties; those of *C. vulgaris* by the May Duke and Morello. Both of these species appear to be natives of Europe, although Pliny states that there were no Cherries in Italy before the victory obtained over Mithridates by Lucullus, who was, according to the above author, the first who brought them to Rome, about sixty-eight years before the Christian era. It is also stated by the same authority, that "in less than 120 years after, other lands had Cherries, even as far as Britain beyond the ocean." Theophrastus, 300 years B.C., mentions the Cherry as being common in Greece, from which some writers contend that the name of the city was derived from the tree, instead of the tree from the town or city. The well-known Wild Cherry of our woods is *C. serotina.* The common double Cherry and the French double Cherry deserve a place in every garden; and equally so do the Chinese Cherry, *C. pseudo-cerasus;* the All-Saints' Cherry, *C. semperflorens;* the Bird Cherry, *C. padus;* the Virginian Bird Cherry or Choke Cherry, *C. Virginiana.*

Ceratonia. Carob Tree. From *keras*, a horn; in reference to the shape of the seed-pod. *Linn. Polygamia-Dioecia.* Nat. Ord. *Fabaceæ.*

C. siliqua, the only species, is a tree of medium size, growing extensively in the south of Europe, particularly in some of the Spanish provinces, and produces a fruit known as the *Carob Bean*, which is an important article of commerce. It is chiefly used for the feeding of cattle, but is largely used by the poor for food when there is a scarcity of grain. This is generally considered the Locust Tree of Scripture; and in Spain, where the seeds are eaten, it is called St. John's Bread. Under this name the pods are often sold on the streets in New York. It is now generally supposed that the shells of the Carob pod were the husks that the prodigal son desired to partake of with the swine.

Ceratostema. From *keras*, a horn, and *stema*, a stamen; the anthers are spurred. *Linn. Decandria-Monogynia.* Nat. Ord. *Vacciniaceæ.*

A small genus of very pretty green-house evergreen shrubs, natives of Peru. The flowers are tubular, of orange, crimson, or scarlet color, produced in terminal clusters in May. Propagated by cuttings. Introduced in 1846.

Ceratozamia. A genus of *Cycadaceæ*, deriving its name from the presence of two horns on the scales of its Zamia-like fruit. *C. Fusco-viridis* is a magnificent plant of recent introduction from Mexico. It is a tree of moderate size, with

leaves from three to four feet long, broadly pinnate, and of a fine arching habit. The young leaves are of a rich, bronzy chocolate color, gradually changing to olive green, and ultimately developing into deep green. Young plants are obtained by suckers or from seed.

Cercis. Judas Tree. From *kerkis*, a shuttlecock; the name given by Theophrastus. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A genus of handsome, low-growing trees, with singular leaves and very showy flowers. The flowers have an agreeable acid taste, and are frequently used by the French in salads, or made into fritters with batter, and the flower buds are pickled in vinegar. It is an ornamental tree in spring, as the flowers completely clothe the branches, and even the upper part of the trunk, with purple before the leaves appear. *C. siliquastrum* is a native of the south of Europe, and of which Gerarde, in compliance with the popular notions of his time, says: "This is the tree whereon Judas did hang himself; and not upon the Elder Tree, as it is said." (Herbal, 1596.) *C. Canadensis*, a native species, is common on the banks of streams from Canada to Louisiana. *C. Japonica*, from Japan, is a very dwarf tree or shrub, and exceedingly beautiful.

Cereus. From *cereus*, waxy; referring to the shoots of some of the species being easily bent. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

An extensive genus, the species of which are remarkable for their singularity of form, and for the beauty of their flowers. Few classes present greater contrasts. Some are round, some angular, some smooth, and others fluted. Some are climbers or creepers, while others grow like huge trees, attaining a height of sixty feet with a diameter of two or three feet. The night-blooming section is very interesting and beautiful. *C. grandiflorus*, the type, usually requires age to flower well. A strong plant will frequently have six to ten exceedingly large and beautiful sweet-scented flowers open in an evening. They are very transient, lasting only a few hours, neither do they open again when once closed. They begin to open between six and eight o'clock in the evening, are fully expanded by eleven, and by three or four in the morning they are closed; but during their short continuance there is scarcely any flower of greater beauty, or that makes a more magnificent appearance. The flowers of the night-blooming section vary in size from six to fourteen inches in diameter, according to the species, *C. MacDonaldi* being the largest, and sometimes measuring fourteen to sixteen inches. The sepals in some are brown, in others brownish-yellow, and in others again pinkish-brown. The petals in some are pale, yellowish white, and in others pure white. The stamens are usually a bright yellow. Some are sweet-scented, others the reverse, while some are odorless, but all are beautiful. The flowers of the day-blooming section are usually small, but very bright and pretty. For other kinds of night-bloomers see *Phyllocactus*. For culture see *Cactus*.

Cerinthe. Honeywort. From *keros*, wax, and *anthos*, a flower; referring to its being a favorite flower with bees. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ.*

A small genus of hardy annuals, common in Central Europe. One species, a native of the south of France, is a hardy perennial. The annuals have long been cultivated in gardens, under the name of Honeywort. They have yellow flowers, tubular, in one-sided drooping racemes. They sow themselves when once planted, and require but little care.

Ceroxylon. Wax Palm. From *keros*, wax, and *xylon*, wood; the trunk being coated with wax. *Linn. Monœcia-Polyandria.* Nat. Ord. *Palmaceæ.*

A small genus of Palms, consisting of three species, two of which are handsome trees of great size. *C. andicola*, the Wax Palm of New Grenada, was discovered by the celebrated traveler, Humboldt, who describes the tree as attaining the prodigious height of one hundred and sixty feet, while it differs from other species of Palms in flourishing under a much colder temperature, it being found on elevated mountains, extending as high as the lower limit of perpetual snow. Its tall trunk is covered with a thin coating of a whitish, waxy substance, giving it a marbled appearance. This substance forms an article of commerce, and is obtained by scraping the trunk. It consists of two parts resin and one of wax. It is mixed with tallow and made into candles, which are of superior quality. The trunk yields a valuable timber, used for building purposes, and the leaves are used for thatching roofs. Propagated from seed.

Cestrum. Derivation of name unknown. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

Green-house shrubs, natives of the East Indies and South America. *C. nocturnum*, frequently called the Night-Blooming Jasmine, is a much esteemed species, which flowers abundantly all summer, if planted in the open air in May, and fills the whole garden with its fragrance at night, though perfectly inodorous during the day. It should be taken up in autumn, and if kept in a box or pot, rather dry, may be easily preserved in a warm cellar until spring.

Ceterach. From *Chetherak*, the Arabic name. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of Ferns, somewhat resembling the *Aspleniums*. *C. officinarum*, the Scale Fern, is an interesting species, suitable for rock-work, but impatient of much water, as are all of the species. Both the hardy and green-house species are valuable in collections. They are natives of Great Britian and the Canary Islands.

Chain Fern. See *Woodwardia.*

Chamædorea. From *chamai*, dwarf, and *dorea*, a gift; referring to the nuts of this Palm being easily reached. *Linn. Diœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A genus of Palms containing about forty species, common in Mexico and South America. *C. Ernesti-Augusti* is a small species, a native of New Grenada. It grows from four to five feet high, with wedge-shaped leaves about two feet long. The female flower spikes of this species, which are very beautiful, are about a foot long, cylindrical, and undivided. At first they are of a dark green color, studded with red, bead-like flowers. After these fall away, the spike becomes a bright coral-red color. Several of the species are interesting green-house plants, and are readily grown from seed.

Chamæpeuce. From *chamai*, dwarf, and *peuke*, a pine; resemblance. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A genus of uninteresting plants, annuals, perennials, and biennials, common throughout Europe. None of them is considered of sufficient interes tto cultivate.

Chamærops. From *chamai*, dwarf, and *rhops*, a twig; most of the species being dwarf. *Linn. Polygamia-Diœcia.* Nat. Ord. *Palmaceæ.*

CHA

A genus of low-growing Palms, including several species, some growing as far North as the Carolinas. The Palmetto State furnishes *C. Palmetto*, hence the name. Many of the species are half-hardy, and all make beautiful plants for lawn decoration. They make a rapid growth in summer if given a rich loam, and liberal applications of liquid manure. They are increased by seed.

Chamomile. See *Anthemis.*

Chaw Stick. See *Gouania.*

Charlock. *Sinapis arvensis*, a well-known weed.

Cheat Grass. See *Bromus.*

Checkerberry. See *Gaultheria.*

Cheilanthes. Lip Fern. From *cheilos*, a lip, and *anthos*, a flower; in reference to the form of the indusium. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of Ferns, found scattered over nearly all parts of the world. There are several species found in most parts of the United States. Some of the tropical species are exceedingly pretty, among which *C. farinosa*, a native of the Island of Luzon, has ivory-black stems, the fronds being dark green above, and of a pure white beneath, caused by a powdery substance, which has given this species the popular name of Silver Fern. This species was introduced in 1854. Propagated from spores or by division of the roots when just commencing to grow.

Cheiranthus. Wallflower. From *cheir*, the hand, and *anthos*, a flower; in reference to the custom of carrying the Wallflower in the hand for a nosegay. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

Well-known herbaceous plants, much prized for the delightful odor of their flowers, which are produced from April to July. *C. Cheiri*, the common Wallflower, is generally grown, and is a great favorite in English gardens, where it flowers freely. Our climate does not suit it so well as that of England, as it delights in a moist atmosphere. The fine double varieties are increased by cuttings, and should be grown in a cool house, in a strong, rich loam. The plants usually grown for the market are from seed sown in March. Most species are from Southern Europe, and have been grown for centuries.

Chelone. Shell-flower. From *chelone*, a tortoise; the back of the helmet of the flower being fancifully compared to a tortoise. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

Most of the genus are hardy herbaceous perennials. Native plants are common in moist places westward. Their singular beauty entitles them to a place in every collection. The flowers are white, rose-color, or purple. They succeed well in ordinary garden soil, and are propagated by division of roots, and by seed.

Chenopodium. A genus of troublesome weeds, the more common being *C. album*, or Pig-weed; *C. glaucum*, Goose-foot; and *C. ambrosioides*, Mexican Tea.

Cherokee Rose. See *Rosa.*

Cherry. See *Cerasus.*

Chess. See *Bromus.*

Chestnut. See *Castanea.*

Chestnut-Oak. See *Quercus Prinus.*

Chickory. See *Cichorium.*

Chickweed. See *Stellaria.*

Chimaphila. From *cheima*, winter, and *phileo*, to love; these little plants remaining green all winter. *Linn. Decandria-Monogynia.* Nat. Ord. *Pyrolaceæ.*

CHL

A small genus of pretty little native, hardy, trailing, evergreen plants, commonly known as *Pipsissewa* and *Spotted Wintergreen*, the latter name being applied to *C. maculata*, one of our most beautiful native plants with variegated foliage. It is common in dry woods throughout the Middle States, but very difficult of cultivation in the garden.

China Aster. See *Callistemma.*

Chinese Bell-flower. See *Abutilon.*

Chinese Grass-cloth Plant. See *Bœhmeria.*

Chinese Primrose. See *Primula.*

Chinese Sugar-cane. See *Sorghum.*

Chinquapin. See *Castanea.*

Chionanthus. Fringe Tree. From *chion*, snow, and *anthos*, a flower; in reference to its long racemes of pure white flowers. *Linn. Diandria-Monogynia.* Nat. Ord. *Oleaceæ.*

A genus of hardy deciduous shrubs. *C. Virginica*, one of the best known, and the more commonly grown under the popular name of *Fringe Tree*, is a very ornamental shrub of easy cultivation, particularly adapted for the lawn, not only for its showy flowers in spring, but for its deep green, glossy foliage, which, under favorable circumstances, will equal in size that of the *Magnolia grandiflora*, retaining its freshness until late in the autumn. This species is a native of Pennsylvania and southward, and is readily propagated from seeds or cuttings. It succeeds best when grafted on the common ash, being much more vigorous, and will attain a height of twenty-five feet.

Chironia. A classical name, after *Chiron*, one of the Centaurs, fabled to be the father of medicine. *Linn. Pentandria-Monogynia.* Nat. Ord. *Gentianaceæ.*

Green-house plants of short duration, and consequently requiring to be frequently raised from cuttings, which strike freely in sand. *C. frutescens*, with rose-colored flowers, and its variety, with white flowers, are the most desirable species, and may be easily procured from the florist. They are also frequently raised from Cape seeds, the plants being all indigenous at the Cape of Good Hope. Introduced in 1756.

Chives. The popular name of *Allium Schœnoprasum*, the smallest of the Onion family, though one of the finest flavored. It is a hardy herbaceous perennial, native of Siberia, and of the easiest culture, growing freely in almost any soil or situation. Propagated by division, either in spring or autumn.

Chlidanthus. From *chlideios*, delicate, and *anthos*, a flower; alluding to the delicate texture of the flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

C. fragrans, the only species, a pretty bulbous-rooted plant, which may be grown in the flower garden during the summer, when its bright yellow flowers are highly interesting. In winter it requires the same treatment as the Gladiolus. It is propagated freely by offsets, which should all be removed before planting, to enable the bulb to flower well. Introduced in 1820.

Chloris. From *chloros*, green; alluding to the color of the herbage. *Linn. Polygamia-Monœcia.* Nat. Ord. *Graminaceæ.*

A very extensive genus of grasses, including a few desirable species for the green-house. Among them is *C. radiata*, a pretty little annual species, with beautiful one-sided spikes of silky flowers, which give it a very curious appearance. There are several other species under cultivation, all useful for basket and similar work.

Chlorophytum. From *chloros*, green, and *phyton*, a plant; referring to the appearance of the plants. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of herbaceous plants, mostly with inconspicuous flowers. *C. elatum* is in cultivation, and is a pretty, free-flowering plant, with a tall scape, and terminal racemes of white, star-like flowers. It is a native of the Cape of Good Hope, and allied to *Anthericum.*

Chocolate. See *Theobroma.*

Choisya. Named after *M. Choisy*, a botanist of Geneva. *Linn. Decandria-Monogynia.* Nat. Ord. *Rutaceæ.*

C. ternata, the only species, is a handsome white-flowered shrub, growing about six feet high. It is a native of Mexico, an evergreen, and will succeed well with ordinary green-house treatment. It is increased by cuttings. Introduced in 1825.

Choke-Berry. The popular name of the fruit of the *Pyrus arbutifolia*, a common shrub from two to ten feet high, found in damp thickets.

Choke Cherry. See *Cerasus.*

Chondrilla. From *chondros*, a lump; the plants bear lumps of gummy matter on the stems. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A genus of mostly uninteresting plants allied to *Lactuca*, (Lettuce.) *C. juncea*, a native of Southern Europe, has escaped from the garden and become naturalized in some of the Southern States. It is a straggling, many-branched plant, and almost destitute of leaves when in flower. There are more than twenty species included in this genus, mostly weedy plants.

Choretis. From *choros*, to unite in chorus; this genus being an intermediate link between *Hymenocallis* and *Ismene. Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

An interesting genus of half-hardy bulbs from Texas and Mexico, requiring a rest from November until May. They grow freely in a light, sandy soil in the open border, or they may be grown in pots in the green-house, and for this purpose they should be started in March in a cool house, heat and water to be increased with their growth. The flowers are very beautiful, pure white, with a green eye and a greenish stripe. Propagated by division of bulbs.

Chorozema. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

This interesting green-house plant was first discovered in Western Australia by Labillardiere. This botanist was attached to the expedition sent by the French Government in search of the lost La Perouse, and on one of his excursions suffered much, with his party, for the want of water. At last they met with springs that furnished an ample supply, near which he found this plant, which he named *Chorozema*, from *choros*, a dance, and *zema*, a drink; in allusion to the joyful feelings of the party on meeting with a supply of water. Of this really beautiful genus there are many species; the one most commonly met is *C. varia*, a rapid-growing and free-flowering kind. The flowers are of a bright orange-red color, in long terminal racemes, flowering through the winter months. It is readily propagated by cuttings, which should be taken in February, and grown in small pots until the weather is suitable for planting out, as they should be grown in the border during summer. Before there is danger from frost, take up and pot in five-inch pots, in good rich loam and sand. Cut well back, and give it a warm, sunny situation, with liberal

watering as soon as the new growth commences. It will begin to bloom in eight to ten weeks.

Christmas Rose. See *Helleborus niger.*

Chrysanthemum. From *chrysos*, gold, and *anthos*, a flower; alluding to the color of some of the flowers being yellow. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

The value of the Chinese Chrysanthemum, *C. Sinense*, as an ornament of the flower-garden, the green-house, or the conservatory, in the autumnal months, is well known and duly appreciated. From the almost numberless varieties now cultivated it is easy to form a selection at once rich and varied. The first object in the culture of these plants is to obtain dwarf specimens, and to preserve all the foliage near the base of the stems. To effect this, the cuttings should be taken from the old stools in May. They are rooted readily in a green-house or a frame. As soon as rooted, the young plants should be potted singly in small pots filled with sandy loam, to induce them to emit an abundance of roots. A cool, airy situation out of doors should be selected for them, and constant attention be given to the supply of water. After standing about a month in this position, they should be shifted into the large pots they are intended to bloom in, using a mixture of equal parts of loam and rotten manure, and at the same time the top of the plant should be cut off, which will cause it to send out branches, and these again may be stopped if they grow strongly, and it can be done before the end of August. During the whole of the time the plants are out of doors, which will be till the approach of frost, they should stand at some distance from each other, that each one may have the full influence of the air. Being carefully watered every day with pure water, and occasionally with diluted liquid manure, the new growth will be vigorously developed, and the flowers better and larger. If the points of the shoots which are taken off last can be induced to root quickly, they make pretty little plants of a few inches in height, surmounted with flowers equally fine with those on the larger specimens, and are useful for the fronts of shelves or to stand before the large pots. On the removal of the plants to the green-house, crowding should be avoided, and a full supply of both air and water given daily until the flowering season is past, when they may be removed to a shed or put in a cold frame until spring, when they may be separated and planted out, or started for cuttings. There has been recently introduced from Japan quite a distinct and unique class of Chrysanthemums, with very large flowers of various colors. There are several annual Chrysanthemums with white, yellow, and purple flowers, which easily grow from seed, and well deserve a place in the flower garden. *C. frutescens* is the "Marguerite" of the Paris gardens, and has for the past few years been somewhat extensively used in bouquets, etc., by the florists of New York and other large cities; but as the flower is simply a Daisy the fashion is not likely to be long continued. *Leucanthemum vulgare*, (*Chrysanthemum leucanthemum, L.*,) the Ox-eye Daisy of the fields, has also been used for the same purpose. There is now a yellow-flowered variety of *C. frutescens*, called the "Golden Marguerite."

Chrysobactron. From *chrysos*, gold, and *baktron*, a wand; alluding to the magnificent racemes of *C. Rossii. Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

This is a small genus from the Aukland and Campbell Islands, New Zealand, closely allied to *Anthericum*. They are found growing in marshy places, and will only succeed well with pot culture. The soil should be a fibrous loam. The pots in which they are grown should be partly immersed in water. The flowers are bright yellow, produced in racemes, and are very beautiful. Propagated by division of roots. Introduced in 1848.

Chrysurus. From *chrysos*, gold, and *oura*, a tail; alluding to the compact heads of flowers. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A small genus of annual grasses, natives of the south of Europe and north of Africa. *C. aurea* is the only species of interest. This is very ornamental in the border, and is also useful in the green-house. It grows readily from seed.

Chysis. From *chysis*, melting; in reference to the fused appearance of the pollen masses. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A genus of very handsome Orchids, natives of Central America. The flowers are mostly white, or creamy white, heavily tipped with pink, the lip being beautifully marked with carmine and yellow. *C. aurea maculata* has golden yellow flowers, with a large orange spot; lip white, with violet rays. When in a growing state they require liberal heat and moisture, and a cool, dry house when at rest. They are increased by division just as they commence a new growth. Introduced in 1830.

Cibotium. From *kibotion*, a small box; referring to the form of the spore vessels. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of very interesting Ferns related to *Dicksonia.* They are large and very handsome, and in some cases arborescent. The fronds are bi-pinnate, and often glaucus beneath. *C. Barometz* is believed to be the Tartarian Lamb, about which travelers have told so wonderful a tale. This "Lamb" consists merely of the decumbent, shaggy caudex of a kind of Fern, which is unquestionably this species. The "traveler's tale" is, that on an uncultivated salt plain of vast extent, west of the Volga, grows a wonderful plant, with the appearance of a lamb, having feet, head, and tail distinctly formed, and its skin covered with soft down. The lamb grows upon a stalk about three feet high, the part by which it is sustained being a kind of navel. It turns about and bends to the herbage, which serves for its food, and pines away when the grass dries up and fails. The fact on which this tale is based appears to be, that the caudex of this plant may be made to present a rude appearance of an animal covered with silky, hair-like scales, and if cut into is found to have a soft inside of a reddish, flesh-colored appearance. When the herbage of its native haunts fails through drought, its leaves no doubt die, and both perish from the same cause, and independently of each other. From these appearances, the common people believe that in the deserts of Scythia there exist creatures half animal and half plant. The species are very interesting plants for the green-house, but are seldom seen. They are propagated by division. Introduced in 1824.

Cichorium. Chicory or Succory. An ancient Egyptian name. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

This plant, so extensively cultivated in Europe as a substitute for coffee, or for its adulteration, is commonly known as Wild Endive, and is found growing wild in most parts of Europe, being by far the most common in England. It is also naturalized in this country, and is common in neglected fields and along roadsides in neighborhoods long settled. Its flowers are bright blue, produced in great profusion in August and September. The plant grows in its wild state from one to three feet high, but under cultivation it often reaches six feet. The roots are fleshy, not unlike the Dandelion, to which family it belongs. For the adulteration of coffee, the root is dried and ground, in which state it closely resembles ground coffee. The use of Chicory is common and undisguised, and many consider a mixture preferable to pure coffee, and buy the two, and mix to suit their own tastes. So great is the demand for it for this purpose, that, notwithstanding its cheapness and ease of culture, it is often adulterated by roasted wheat, rye, acorns, carrots, and other articles of a similar nature.

Cicuta. Cowbane, Water Hemlock. The ancient Latin name of the Hemlock. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

A small genus of biennial plants, very common in moist waste places. *C. maculata*, commonly known as Spotted Cowbane, somewhat resembles Sweet Cicely, and is often mistaken for it. The root is an active poison in its green state, but loses its virulent qualities when dried. It is a dangerous pest to the farmer, the herbage often proving destructive to cattle, when eaten by them, and many children have lost their lives by eating the roots, which they have mistaken for Cicely. *C. virosa*, a species common throughout Europe, furnished the poison given to Phocion and Socrates.

Cinchona. Named after the *Countess of Cinchon*, Vice-Queen of Peru, who was cured of a fever in 1638 by this remedy. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

This genus yields the well-known Peruvian bark of commerce. It requires the protection of a warm green-house to preserve it in even moderate vigor. It is the type of an extensive and highly interesting order.

Cineraria. From *cineres*, ashes, in reference to the gray down covering the surface of the leaves. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

There are upward of fifty species of this genus enumerated, varying in habit from the dwarf herbaceous plant, not rising more than half a foot, to the tall, soft-wooded, suffruticose species with a stature of five or six feet. The flowers of most of them are of a pale greenish yellow, though some have white, red, or purple flowers. The whole of the true species are so thoroughly eclipsed by the modern hybrid varieties as to be entirely excluded from any but purely botanical collections, and are of so little interest as to warrant our passing on to the culture of those beautiful ornaments of the green-house in early spring. The first recorded variety is *Waterhousiana*, obtained from *C. tussilaginoides;* but we very much doubt so coarse a parentage having any connection with such neat, handsome, highly-colored, and free-flowering subjects as those cultivated now. The seed of these plants should be sown in autumn, (September or October,) as soon as ripe. The young plants should be potted separately in a soil composed of loam, leaf mould, and sand, in about equal proportions. The young plants are preserved best in a green-

house or frame. It is on the condition of the plants through this part of the year that the flowering of the succeeding spring mainly depends, for if not perfectly healthy now, it is almost hopeless to expect them to be vigorous then. About the beginning of February they should be repotted, using a stronger soil than that recommended for the first potting. Throughout the entire existence of the plants they should be guarded from drought and the attacks of the green fly, to which they are very subject. Fumigation and washing with tobacco-water are the most effective means of clearing them from the latter. After flowering, the old stems should be cut away, and the plants shifted back into small pots, preserving them through the winter in the manner advised for seedlings.

Cinnamomum. Cinnamon. From the Arabic name, *kinamon*. *Linn. Enneandria-Monogynia.* Nat. Ord. *Lauraceæ*.

A genus of evergreen trees, well known as furnishing the Cinnamon of commerce. *C. Zeylanicum* is largely cultivated in Ceylon for its bark, which furnishes the best Cinnamon. The bark is stripped off the branches, when it rolls up into quills, the smaller of which are introduced within the larger, and then dried in the sun. The thinner the bark is, as a rule, the finer the quality. *C. Cassia* furnishes Cassia bark, which is much like Cinnamon, but thicker, coarser, stronger, less delicate in flavor, and cheaper. It is commonly used in the adulteration of Cinnamon. Both species furnish what are known as Cassia buds, which are something like cloves, and, like them, consist of the unexpanded flower buds. They possess properties similar to those of the bark. There are several other species of this genus that furnish aromatic barks, which are used in flavoring and in medicine.

Cinnamon Fern. The popular name of one of our native Ferns, *Osmunda Cinnamomea*.

Cinnamon Tree. See *Cinnamomum*.

Cinque-Foil, or Five-Finger. One of the popular names of *Potentilla*, which see.

Circæa. Enchanter's Nightshade. A classical name, after *Circe*, a celebrated enchantress, skilled in poisonous herbs. *Linn. Diandria-Monogynia.* Nat. Ord. *Onagraceæ*.

A small genus of hardy herbaceous perennials, of but little interest; natives of Europe, and naturalized in many parts of this country.

Cirrhopetalum. From *cirrhus*, a tendril, and *petalon*, a flower leaf; in reference to the strap-shaped petals. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ*.

An extensive genus of small, very curious epiphytal Orchids, natives of tropical Asia and the South Sea Islands. Their flowers are remarkable for having the lateral sepals prolonged into narrow streamers. From this peculiar feature, and the fact that they occupy but little room, a few of the species have been introduced into the more general collections of Orchids. Propagated by division.

Cirsium. Common or Plumed Thistle. From *kirsos*, a swollen vein; in reference to being pricked by the spines. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ*.

The Thistle family are too well known to need special mention. Two of the more troublesome species, *C. lanceolatum*, Common Thistle, and *C. arvense*, the Canada Thistle, are both natives of Europe, though perfectly naturalized in this country. There are many native species, the most conspicuous being *C. muticum*, Swamp

Thistle, a perennial common in moist woods and swamps, often growing as high as eight feet.

Cissus. From *kissos*, ivy; in reference to their scrambling habit. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Vitaceæ*.

A genus of climbing plants, allied to *Vitis*. With a few exceptions, they are plants of but little interest to the florist. One of the species, however, *C. discolor*, is a plant remarkable for the beauty of its foliage, and its adaptation to the hot-house. This species is a native of Java, and was introduced into England in 1854 by Messrs. Rollison and Sons, of Tooting, and is described by Mr. Lowe as follows: "The leaves, which are six inches long and two and a half broad, are colored on the upper surface in the richest manner conceivable, the plant rivaling, in its beautiful foliage, the finest of the *Anæctochilus* family; the color being a rich green, clouded with white, peach, and dark purplish crimson, and covered with a metallic luster. The under side of the leaf is a rich brownish crimson. No description or painting can do justice to the beauty of these superb leaves when in perfection." This plant is a rapid grower, requiring a very rich soil and humid atmosphere, together with a high temperature, to bring it to perfection. It should be grown in a shaded house, and care should be taken not to syringe the plant, as water on the leaves destroys the metallic luster. It is readily increased by cuttings. The leaves are much valued by florists for their various work in baskets, designs, etc.

Cistus. Rock Rose. From *kiste*, a box; in reference to the form of the seed vessel. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cistaceæ*.

A genus of handsome shrubs, few of which are in cultivation. They are natives of Southern and Western Europe, North Africa, and the Canary Islands. Some of the species are elegant shrubs, having terminal flower stalks bearing one or more flowers, resembling in appearance those of the Dog Rose. They seldom last more than a few hours after expanding, and do not open except in sunny weather. The flowers are either white or rose-colored, with yellow or purplish marks at their base. Some of the species furnish a gum that is used in Turkey as a perfume and for fumigation. It was also supposed to be a specific for the plague. Propagated by seeds, layers, or cuttings.

Citharexylum. Fiddle-wood. From *kithara*, a lyre, and *xylon*, wood; in reference to the supposed fitness of the wood for musical instruments. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Verbenaceæ*.

A genus of tall-growing trees common from Florida to Brazil. It furnishes a hard, durable wood, suited for various purposes in the mechanic arts. Its supposed use in the manufacture of musical instruments is a mistake. One of the species is called by the French *Fidèle*, for its durability in building. The English have corrupted the name to Fiddle-wood, by which name it is popularly known.

Citrus. Orange Tree. Derivation of name unknown. Supposed to refer to *Citron*, a town in Judea. *Linn. Polyadelphia-Digynia.* Nat. Ord. *Aurantiaceæ*.

The genus *Citrus* includes the Orange, Lemon, Lime, Citron, Shaddock, etc., all well deserving cultivation, both for their flowers and their fruit, but of which only a few kinds of Oranges and Lemons are generally grown. When grown for or-

namental purposes in green-house or rooms, they all thrive well in a mixture of rich loam with a little rotten dung; but great care is necessary not to overpot them, or give them too much water when not in a growing state. The different species and varieties are generally propagated by budding, grafting, and inarching on the common Lemon, which grows readily from seed. Oranges are also frequently raised from seed; but unless they are budded or grafted when about two years old, it will be many years before they flower. Orange Trees may also be propagated by cuttings, which are best from the old wood, struck in sand in a gentle bottom heat, and shaded. Plants raised in this manner flower and fruit much sooner than any others, but they scarcely ever attain a large size. Both the Orange and Lemon are such favorites in this country that scarcely a cottage, where a flower-pot or tub can be put into requisition, is without one or the other of these plants. When placed in unsuitable soil and carelessly watered, they seldom remain long in a good state of health. When they become sickly and yellow, they should be turned out of the pots, a large portion of the old soil should be detached from the roots, and they should be repotted in a mixture of fine loamy soil and rotten manure, with about one-fourth of charcoal dust, or powdered charcoal. There are numerous varieties of Oranges and Lemons grown for the fruit. Our markets were formerly supplied from the south of Europe, the Azores, and the West Indies. Until within a few years the "Havana" was the most highly esteemed, but the Florida Orange is now the leading variety in the markets. The cultivation of the Orange in Florida commenced previous to 1820, but was carried on only to a limited extent for some years thereafter. From 1830 to 1835 many large groves were planted, nearly all of which were destroyed by the extraordinary frost of the latter year. The previous year there were trees at St. Augustine that produced each 14,000 Oranges; a handsome revenue from a single tree. The dreaded effects of a frost almost entirely discouraged further plantings for a number of years. The cultivation of the Orange is now attracting greater attention in Florida than ever before. The Indian River country abounds in plantations that are yielding large and profitable crops. Some of the more scientific growers, from careful experiments and close observation, hold the opinion that frosts as severe as those of 1835 will not injure the trees, if the precaution be taken to shade the trunks from the sun for a short time, until the circulation of the sap is fully restored. Lemons, Limes, and Shaddocks are also largely grown in Florida. In some parts of Texas, and in California, the cultivation of these fruits is being rapidly extended.

Cladrastis. See *Virgilia lutea.*

Clarkia. In honor of *Captain Clarke*, who accompanied Captain Lewis in his journey to the Rocky Mountains. *Linn. Diandria-Monogynia.* Nat. Ord. *Onagraceæ.*

A genus of hardy annuals, mostly from California. The whole of the species are indispensable to every flower garden where annuals are grown. The first sowing should take place in September; a few will survive the winter, and afford an early bloom in the following season. The next and principal sowing should be done in March; and a few more put in about the end of April, together with those transplanted, will

continue a fine display through the whole summer. They grow in any soil, so that the situation is open or free from the drip of trees, and merely require to be thinned to about a foot from each other. This rule will apply to nearly all that are known as "tender annuals." Introduced in 1825.

Claytonia. Named after *Dr. John Clayton*, an early American botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Portulacaceæ.*

A genus of very pretty hardy plants, of either annual or perennial duration. The former only require to be sown where they are to remain, and the latter succeed when planted in loam without further trouble. Their flowers are either white or pink of various shades. They are found in moist woods from Virginia westward and southward. Several tuberous-rooted species are found in this country from Virginia westward to California. They do not differ materially from the annuals in flowering. They are worthy of cultivation.

Cleavers or Clivers. See *Galium.*

Clematis. Virgin's Bower. From *klema*, a vine-branch; in reference to their climbing like a vine. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

An extensive genus of handsome twining shrubs, natives of North America, Europe, Japan, and occasionally met with in Australia, Asia, and Africa. *C. Virginiana* is the well-known Virgin's Bower, a species common in the woods and roadsides from New York southward. There are several other species common in this country. All are much admired for their gracefulness, delicious fragrance, and poetical associations. For the many large-flowering varieties we are indebted to Sieboldt and Fortune, who discovered them in Japan. From the several species introduced by them very many varieties have been produced, among which is *C. Jackmanii*, a variety with large purple flowers, very showy and deservedly popular. Some of the varieties are pure white, with both double and single flowers. The whole of them are quite hardy, though the young growth should be protected the first winter. They delight in a strong, rich soil, and are highly useful in covering walls, arbors, or verandas, which they do speedily when once established. They are propagated by layering the young shoots in summer or by root grafting on some of our stronger growing native varieties. The shoots of the half-ripened young wood can also be freely rooted by cuttings during the summer months. *C. crispa*, a native species recently introduced, promises to become very popular, and deservedly so. The flowers, of medium size, are of a beautiful purple, and deliciously fragrant: a characteristic absent from most of the class. *C. coccinea*, another recent introduction, presents us with a new and desirable color.

Cleome. From *kleio*, to shut; in reference to the parts of the flower. *Linn. Tetradynamia.* Nat. Ord. *Capparidaceæ.*

An extensive genus, consisting of tropical shrubs, annuals and biennials, which are not suitable for general cultivation. This genus, however, contains several very curious and pretty indigenous annuals, with white, rose, and purple flowers, natives of the Southern and Western States. They are all easy of cultivation. They should be started in a hot-bed, and the plants put out in the open border at the proper season for tender annuals.

Clerodendron. From *kleros*, a chance, and *dendron*, a tree; said to be owing to the uncertainty of the medicinal qualities. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Verbenaceæ.*

It is difficult to conceive more beautiful objects than several members of this genus when well cultivated. Cuttings taken off any time during summer root readily, or in winter in gentle heat, and should be kept in small pots through the succeeding winter, on a shelf or underneath a bench in the green-house. About the first of February repot them, giving them a liberal shift. The soil should be light and very rich. To flower freely they require frequent shiftings from smaller into larger pots. With this treatment they can be made to bloom continually during the entire season. Old plants can be grown on with occasional shiftings, and make splendid plants for garden decoration during summer. They must, however, be grown in the shade. After flowering water freely, in order that they may make a good growth; after which they should have partial sun to ripen the wood. If not wanted for winter flowering, remove the plants in the fall to a light cellar, free from frost, giving them through the winter just enough water to sustain life. In the spring, when all danger from frost is over, remove the plants to any desired position in the garden or on the veranda for another season of bloom. *C. Balfourii* is the best and most showy variety, and one we have seen in full bloom a number of years in succession, with the above treatment. It makes a valuable climbing plant when so desired.

Clethra. White Alder, Sweet Pepperbush. From *klethra*, the Greek name of the Alder, which this genus somewhat resembles in foliage. *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ.*

A genus of deciduous shrubs, several species of which are common in swamps and low places along our southern coast. *C. alnifolia* is common in the Middle States. It is remarkable for its sweet-scented flowers, which are borne in terminal racemes in July and August. Like many other natives of our swamps, it improves by cultivation, and will succeed well in a shrubbery border, however dry. It should be transplanted in early spring.

Cleyera. Named after *Dr. Cleyer*, a Dutch botanist. *Linn. Polyandria-Monogynia.* Nat. Ord. *Ternstromiaceæ.*

An ornamental green-house evergreen shrub, with yellowish-white flowers, sometimes sweet-scented. They are natives of India and Japan, and rarely seen in collections.

Clianthus. Glory Pea. From *kleios*, glory, and *anthos*, a flower. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Fabaceæ.*

A genus of magnificent, half-hardy shrubs from Australia, remarkable for their showy flowers, which are borne in terminal or axillary racemes. *C. puniceus*, the crimson Glory Pea, is a magnificent, half-hardy shrub, with bright crimson flowers, a native of New Zealand. It grows very freely in rich loam if its roots are allowed sufficient room; and it generally thrives best when planted against the back wall of a conservatory. Cuttings planted in pots in the autumn, and kept in the shady part of the green-house, will be rooted by spring, when they may be planted in the open border. It is a plant that rarely flowers well in a pot, as it requires abundance of room for its roots, and grows rapidly, with rather succulent shoots, requiring abundance of water during the growing season, and very little at any other time. When grown in the open ground the juicy nature of its roots renders it a favorite food for snails, and when kept in the conservatory or green-house it is very apt to be attacked by the red spider. If these enemies be kept away, and the plant be grown in rich soil, composed of equal parts of loam and thoroughly rotten manure, and well supplied with air, light, and water, with abundance of room for its roots, the rapidity of its growth and the splendor of its flowers will almost surpass belief; but unless these points are attended to, the plant is scarcely worth growing. *C. Dampieri*, a species of recent introduction from the desert regions of Australia, is by far the most beautiful of the genus, either for the green-house or the border. Its cultivation is rather difficult. It does not grow to such dimensions as the former, but is of the same habit. The flowers are brilliant scarlet, and marked with a black blotch in the center. It succeeds best when treated as an annual. If the seeds be planted in May in the open border where they are to grow, in a rich, sandy loam, they will make magnificent plants, and flower freely from August until killed by frost. Five degrees of frost will not injure either the plants or the flowers. They will not at any time bear transplanting. Introduced in 1832.

Climbing Fern. See *Lygodium.*

Climbing Fumatory. See *Adlumia.*

Climbing Gentian. See *Crawfurdia.*

Climbing Hydrangea. See *Schizophragma.*

Climbing Hempweed. See *Mikania.*

Clintonia. In honor of *De Witt Clinton*, a governor of the State of New York. *Linn. Monadelphia-Digynia.* Nat. Ord. *Lobeliaceæ.*

A genus of hardy annuals from California and British Columbia, free flowering, and very pretty for the border. If the seeds be sown in February, and the plants treated the same as Verbenas, they will flower by the first of June, and continue until killed by frost. Flowers lovely blue, not unlike the Lobelias. Introduced by Mr. Douglas in 1827.

Clitoria. Blue Pea. From *kleio*, to shut up; in reference to its seeding within the flower long before the flower drops off. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Fabaceæ.*

Very handsome hot-house climbers, of graceful habit, the majority producing large, highly-colored flowers. *C. Ternatea* is perhaps the finest, its lovely blue flowers receiving universal admiration. The whole of the perennial species succeed in rich loam. The annual kinds require the ordinary treatment of tender annuals. *C. Mariana* has a curious distribution, being found in the Southern States and Mexico, and appearing again in the Khasia Mountains in India, without being found in any intervening place. Propagated by cuttings or seeds. Introduced in 1732.

Clivia. Named after the *Duchess of Northumberland*, a member of the Clive family. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

Clivia nobilis, the only species, is a robust growing plant, which, once established, is very prolific of flowers. It grows well in sandy loam, if allowed the warmest part of the green-house, or a cool shelf in the hot-house. Its flowers are of a delicate flesh color throughout the greater part of the tube, heightening to a deep red over the limb, the segments of which are bright green. It is increased by division of the roots.

Native of the Cape of Good Hope. Introduced in 1823.

Cloudberry. See *Rubus.*

Clove Tree. *Caryophyllus aromaticus.* The Cloves of commerce are the dried unexpanded flower buds.

Clover. The common name for *Trifolium,* especially applied to the kinds cultivated for hay and pasture.

Club-moss. The common name of *Lycopodium clavatum.*

Club-rush or Bulrush. The common name of the genus *Scirpus,* a common marsh plant.

Cobæa. Named in honor of *B. Cobo,* a Spanish botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

Both of the two species known of these plants are elegant, fast-growing climbers, which may be grown in the green-house, the conservatory, or the garden in summer, where, from their rapid development, they are particularly desirable for covering walls, arbors, or other objects of a similar nature. It is preferable to treat them as annuals. The seed should be sown in March, in light, rich soil, on a gentle heat. The young plants should be potted separately into small pots, as soon as they can be handled with safety, using the same kind of soil, and, after being gradually inured to the temperature they are likely to be subject to in their after growth, may finally, when about a foot in height, be placed where they are to remain. It is seldom that seed is matured in the open air, but in a green-house or conservatory it is produced abundantly. *C. scandens,* the species in general cultivation, is a native of Mexico, and was introduced in 1792. A white flowered variety of *C. scandens* originated here in 1872, and one with variegated leaves in 1874.

Coburgia. Named after *Prince Leopold of Saxe-Coburg,* now King of Belgium. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

An interesting genus of half-hardy bulbs from South America, (mostly from Peru,) requiring the same treatment as the *Amaryllis formosissima.* The flowers are mostly scarlet and very showy. They require a strong, rich soil. Propagated by offsets. Introduced in 1826, but rarely seen except in botanical collections.

Coca. See *Erythroxylon.*

Coccinia. Derivation of name not given. *Linn. Monœcia-Polyadelphia.* Nat. Ord. *Cucurbitaceæ.*

C. Indica, the only species, and formerly called *Momordica monadelphia,* is a climbing shrub, common in the hedges of India. It has large white flowers. The fruit is oblong, marked with ten white lines. When ripe it is of a red color, and is used by the natives in their sauces. The leaves and other parts of the plants are used in medicine.

Coccocypselum. From *kokkos,* fruit, and *kypsele,* a vase; referring to the form of the berries. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of soft-wooded trailing plants from the West Indies and Central America. *C. repens* is interesting from its bluish-purple berries. As a genus, they do not occupy a prominent place either as ornamental or useful plants.

Coccoloba. Sea Side Grape. From *kokkos,* a berry, and *lobos,* a lobe; in reference to the fruit. *Linn. Octandria-Trigynia.* Nat. Ord. *Polygonaceæ.*

Most of this genus are tropical evergreen trees, interesting and beautiful, but too large for ordinary green-house culture. *C. platyclada* is a dwarf

species, with curious flat stems, growing from five to ten feet high. It succeeds well planted in an ordinary flower border, and is useful in filling large vases and rustic tubs, or for planting in rock-work. It is propagated freely by cuttings. Old plants flower freely. The flowers are small and white, produced at the axils of the leaves.

Cocculus. Derived from *kokkos,* the systematic name of the Cochineal; given to this genus because most of the species bear scarlet berries. *Linn. Dioecia-Dodecandria.* Nat. Ord. *Menispermaceæ.*

An extensive genus of climbing shrubs, remarkable for their medicinal properties. With one exception the species are all natives of the East Indies. *C. Carolinus,* common in woods and thickets from North Carolina to Florida, is a very handsome climber, remarkable for its racemes of white flowers, which are succeeded by clusters of bright scarlet berries, that remain on the vine all winter. This is one of the most beautiful climbers under cultivation, and will succeed well where there is not more than ten or twelve degrees of frost. It is increased by cuttings or from seeds.

Cochlearia. Horse-Radish, which see.

Cockle. The common name of *Lychnis Githago,* a troublesome weed in grain fields. Introduced from Europe.

Cochliostema. From *cochlios,* spiral, and *stema,* a stamen. *Linn. Hexandria-Monogynia.* Nat. Ord. *Commelynaceæ.*

A genus of green-house perennials allied to *Tradescantia,* natives of Brazil. They are rather curious in form, having contracted stems and tufted leaves, like those of a *Bromelia.* The flowers are blue, and borne on branched clusters. Of the two species in cultivation, one is small and the other an epiphyte of large size. They are increased by division. Introduced in 1866.

Cocklebur or Clotbur. The popular name of *Xanthium,* a coarse annual weed, common on the sea-coast, especially southward.

Cockscomb. See *Celosia.*

Cocoanut. The nut of *Cocos nucifera,* which see.

Cocos. Cocoanut Tree. From the *Portuguese* word *coco,* a monkey; in reference to the end of the nut resembling the head of a monkey. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

C. nucifera, the well-known Cocoanut Tree, is the type of this genus of Palms, to which, in addition, about a dozen other species belong. They mostly form tall, graceful trees, and the majority of them are natives of the tropical regions of America, one only, the common Cocoanut, being found in Asia or Africa. The trees grow to a great height, with a straight trunk, and, like almost every species of the Palm tribe, without branches. The leaves are from twelve to fifteen feet long. The flowers come out round the top of the trunk in large clusters, inclosed in a sheath, and the nuts succeed them, commonly ten or twelve together. There are few trees more extensively or variously useful. The leaves are employed as thatch to cover houses, and to make mats either for sitting or lying upon. The leaf, when reduced to fine fibers, is the material of which beautiful and costly carpets are made for those in the higher ranks; the coarse fibers are made into brooms. After these useful materials are taken from this leaf, the stem still remains, which is about three inches thick, and furnishes

firewood. The wood of this Palm, when fresh cut, is spongy, but becomes hard after being seasoned, and assumes a dark brown color. On the top of the tree a large shoot is produced, which, when boiled, resembles Broccoli, but is said to be of a more delicate taste; and though much liked, is seldom used by the natives, because, on cutting it off, the pith is exposed, and the tree dies. Between this cabbage-like shoot and the leaves there spring several buds, from which, on making an incision, there distills a juice differing but little from water, either in color or consistence. It is the employment of a certain class of men to climb to the top of the trees in the evening, with earthen pots tied to their waists, which they fix there to receive the juice, which is regularly carried away before the sun has had any influence upon it. This liquor is sold at the bazaars by the natives under the name of toddy. After being kept a few hours it begins to ferment, acquires a sharp taste, and a slightly intoxicating quality, in which state it is drank by the natives and poorer classes with avidity. It is also used as yeast, for which it forms an excellent substitute. By boiling it a coarse kind of sugar is obtained; and by distillation it yields a strong, ardent spirit, which is sold at a low price, constituting it a most pernicious beverage. The outside rind or husk of the fruit yields the fiber from which the well-known Cocoanut matting is manufactured. In order to obtain it the husks are soaked in salt water for six or twelve months, when the fiber is easily separated by beating, and is made up into a coarse kind of yarn called *coir*. Besides its use for matting, it is extensively used in the manufacture of heavy cordage for ships' cables. It is also used for various kinds of brushes, and for stuffing mattresses, cushions, etc. The next important product of the fruit is the oil, which is procured by boiling and pressing the white kernel or albumen of the nut. It is liquid at the ordinary temperature in tropical countries, and while fresh is used in cooking. By the time the nuts reach this country the albumen is solid, and has frequently a rancid smell or taste. When green, or first gathered, this substance is easily separated by pressure into what is termed stearine, which is made into candles, and a very good oil, used for burning in lamps. As an article of food the kernel is of the greatest importance to the inhabitants of the tropics. In the Laccadives it forms the chief food, each person consuming four nuts per day, and the fluid, commonly called milk, affords them an agreeable beverage. While young they yield a delicious substance resembling blanc-mange. As the nut ripens, the milk is gradually absorbed, or hardens into the white, fleshy substance that we find when we receive them. The Cocoanuts brought to this market are chiefly from Central America, where they are gathered from the interior by the natives, brought to the coast, and sold to dealers who make that trade a specialty. *Cocos Weddelliana*, recently introduced, is the most ornamental of this group, and one of the most graceful Palms in cultivation. For dinner-table decoration there is no Palm to compare with it. It is very dwarf, with finely-divided foliage, which is recurved with exquisite grace. It deserves a place in the smallest collection of plants. The *Cocos* are all propagated from seed, and require a temperature of about 70° for the germination of the seed and the growth of the plants.

Cœlogyne. From *koilos*, hollow, and *gyne*, a female; in reference to the female organ or pistil. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ*.

An extensive genus of very beautiful Orchids, natives of sub-tropical Asia. Most of the species are great favorites with Orchid growers, on account of their remarkable flowers, which are produced in great numbers with but very little care or trouble. *C. cristata* is one of the finest of the genus. The flowers are ivory-white, with a blotch of yellow on the lip. "This is a magnificent species, which any one having a greenhouse can grow. Of late years it has been grown in great perfection, and it is as easy to have plants a foot or more in diameter, producing hundreds of flowers, as it is to grow Verbenas. Give plenty of water when growing, free circulation of warm air, and not too much heat."—*Rand.* May be grown in moss in pots. Propagated by division. Introduced in 1837.

Coffea. Coffee Tree. From *Caffa*, the name of a province in Narea, in Africa, where it grows in abundance. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ*.

The Coffee of commerce is the fruit of an evergreen shrub, or low-growing tree, rarely attaining a height of twenty feet, which it will only acquire under the most favorable conditions of soil and climate, the usual height being from ten to twelve feet. All of our coffee is the fruit of one species. Some botanists, however, claim there are two; but the opinion that the different sorts are merely varieties, resulting from soil, climate, and mode of culture, is the one generally entertained. *C. Arabica*, the parent of the numerous varieties in cultivation, is a native of Arabia Felix and Ethiopia, and was first introduced to the notice of Europeans by Ranwolfius in 1573; but Alpinus, in 1591, was the first who scientifically described it. The Dutch were the first to introduce the plant into Europe. Having procured some berries at Mocha, which were carried to Batavia, and there planted, a specimen was sent to Amsterdam, in the year 1690, by Governor Wilson, where it bore fruit, and produced many young plants. From these the East Indies, and most of the gardens of Europe, were furnished. In 1714 a plant was presented by the magistrates of Amsterdam to the French King, Louis XIV. This plant was placed at Marley, under the care of the celebrated Jussieu, who afterward gave a plant to Desclieux, a young officer in the French Navy, who took it to Martinique, from which the extensive plantations of the French West Indies were established, and whence were also derived all the coffee plants in Mexico and South America. The use of coffee was known in Arabia, where the plant is supposed to have been indigenous, long before the periods mentioned. All authorities agree in ascribing its introduction to Megalleddin, a Turkish doctor of divinity of Aden, in Arabia Felix, who had become acquainted with it in Persia, and had recourse to it medicinally when he returned to his own country. The progress which it made was by no means rapid at first, and it was not until the year 1554 that coffee was publicly sold in Constantinople. Its use had, in the meanwhile, been much checked by authority of the Syrian government, on the ground of its alleged intoxicating qualities; but more probably because of its leading to social and festive meetings incompatible with the strictness of the Mohammedan discipline. A similar persecution attended the

use of coffee soon after its introduction into the capital of Turkey, where the ministers of religion having made it the subject of solemn complaint that the mosques were deserted while the coffee-houses were crowded, these latter were shut up by order of the mufti, who employed the police of the city to prevent any one from drinking coffee. This provision it was found impossible to establish, so that the government, with a strict eye to business, laid a tax upon the sale of the beverage, which produced a large revenue. The Turks are most inveterate coffee-drinkers, a fact that may in a great measure be accounted for by the strict prohibition which the Moslem religion lays against the use of wine and spirituous liquors. So necessary was coffee at one time considered among the Turks, that the refusal to supply it in moderate quantities to a wife was reckoned among the legal causes for divorce. Coffee cannot be cultivated to advantage in climates where the temperature at any time descends below fifty-five degrees of Fahrenheit. The trees thrive best in new soils on a gentle slope, where water will not lodge about the roots. In exposed situations it is necessary to plant rows of tall trees, at proper intervals, to moderate the scorching heat of the sun. From Ellis's History of Coffee we learn the following facts: "It is well known that coffee raised in the West Indies does not equal in flavor that produced in Arabia and other parts of the East; and it is commonly imagined that this inferiority is principally owing to local causes, and is, therefore, incapable of being remedied. The seed of the West Indian coffee, from growing in a richer soil and more humid atmosphere, is larger than that of Arabia; though there is reason for believing that the superior quality of Turkey and East Indian coffee is not altogether to be referred to the influences of soil and climate, but depends, in part at least, upon the age to which the seed are kept before they are brought into consumption. Trees planted in a light soil, and in a dry situation, produce smaller berries, which have a better flavor than those grown in rich, flat, and moist soils. The weight of produce yielded by the latter is, however, double that obtained from the former. The drier the soil and the warmer the situation, the better will be the coffee produced, and the sooner it will acquire a flavor." He says further: "The more common or poorest quality of South American coffee will, in the course of ten or fifteen years, be as good, and have as high a flavor, as the best we now have from Turkey; but due care should be taken to keep it in a dry place, and to preserve it properly. Small grained coffee, produced in a dry soil and warm situation, will be matured in three years. The trees begin bearing when they are two years old; in their third year they are in their full bearing. The produce of a good tree is from one and a half to two pounds. The aspect of a coffee plantation during the period of flowering is very interesting. In one night the blossoms expand so profusely as to give the trees the appearance of being covered with snow. This period lasts but one or two days." The amount of labor required to secure a crop of coffee is very great, and is chiefly performed by negroes. When trees are in full bearing, an industrious man will pick three bushels of the berries in a day, and each bushel of ripe berries will yield ten pounds of merchantable coffee. Two systems are employed in curing coffee: A common plan is to expose

the berries to the sun in layers of from five to six inches deep, which will cause the pulp to ferment in a few days, after which it takes about three weeks to dry sufficiently for the husks to be separated from the seeds by a mill. Other planters remove the pulp as soon as gathered, by a mill constructed for the purpose, which bruises the berries and separates the pulp by washing, after which it is dried in the sun, and the husks removed, as in the former process.

Cohosh. A popular name of the genus *Caulophyllum.*

Coix. Job's Tears. A name applied by Theophrastus to a reed-leaved plant. *Linn. Monœcia-Triandria.* Nat. Ord. *Graminaceæ.*

A genus of perennial grasses that succeed well under ordinary cultivation in the garden. *C. lachryma*, a native of the East Indies, from whence introduced in 1596, will do well treated as an annual. It is considerably grown for its seeds, which are popularly known as *Job's Tears.* Mothers, in the last century, thought their children could not be safely carried through teething without a string of Job's Tears around their necks.

Colax. From *colax*, a parasite. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of very beautiful Orchids, taken from *Maxillaria.* They are natives of Brazil, and may be grown in moss and in moderate heat. *Lycaste* was formerly included in this genus.

Colchicum. Meadow Saffron. Named after Colchis, its native country, in Asia Minor. *Linn. Hexandria-Trigynia.* Nat. Ord. *Melanthaceæ.*

A hardy bulbous-rooted plant, which will grow well in the border. The flowers come up through the ground without the leaves in autumn, and closely resemble those of the Crocus. The leaves do not appear till the following spring, and great care should be taken of them, as, if they should be injured so as to prevent them from exercising their proper functions in maturing the sap, the bulb will not flower the next autumn. The class are universally poisonous.

Colea. Named after *General Cole*, Governor of the Mauritius. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Crescentiaceæ.*

There is but one species of this genus, which is found in Madagascar, Mauritius, and the adjacent islands. It is an exceedingly ornamental green-house shrub, producing large clusters of bright yellow flowers in August and September. Propagated by cuttings. Introduced in 1839.

Coleus. From *koleos*, a sheath; referring to the way the bottom of the stamens or anther threads are combined. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

This somewhat extensive genus are natives of Asia and Africa. It consists of annuals, sometimes perennials, and rarely shrubs, but none of value as flowering plants, but of general use in ribbon gardening, massing, or any situation where striking effect is wanted. From the original species many varieties, remarkable for their beautiful foliage, have been produced by florists. They are readily propagated by cuttings. The species were introduced about 1825.

Colic-Root. See *Aletris.*

Coliseum Ivy. See *Linaria.*

Collania. Derivation of name unknown. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A beautiful free-flowering green-house perennial, allied to *Alstrœmeria*, which it resembles. The species are natives of Peru, and will do well in this climate with the protection of

a frame. The flower stems are erect, somewhat rigid, slightly curved at the top, and terminated with an umbel of large, pendulous flowers, upward of two inches long; sepals orange red, tipped with black; petals yellow, tipped with green. Propagated by offsets.

Collards. (*Brassica oleraceæ.*) This is a curled-leafed variety of Cabbage grown for "greens," but mostly in the Southern States. It attains a height of from six to eight feet. This stem is an inch and a half to two inches in diameter, and is used to a considerable extent in Europe for making light walking canes.

Collinsia. In honor of *Z. Collins*, Vice-President of the Academy of Natural Sciences, Philadelphia. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

A genus of free-flowering California annuals of great beauty, and deserving of cultivation, being well adapted for massing and for mixed borders. For massing the seed should be sown thick, so as to thin out to four inches apart, which will give the bed an appearance of a solid mass. For this purpose the dwarf species are to be preferred, the latter ones being more suitable for mixed borders. There is a great variety of color, white, purple, and crimson predominating. First introduced in 1826.

Collinsonia. Horse-Balm. Named in honor of *Peter Collinson*, a well-known patron of science and correspondent of Linnæus, who introduced it into England. *Linn. Diandria-Monogynia.* Nat. Ord. *Lamiaceæ.*

A genus of strong-scented perennial herbs, common throughout the United States. None of the species has any special merit that would warrant its cultivation.

Collomia. From *kolla*, glue; referring to the glue which surrounds the seeds. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

A genus of hardy annuals from California. They are showy plants, but too coarse and weedy in appearance to entitle them to a place in choice collections. They grow readily from seed, and when once planted need no care except to exterminate the surplus quantity.

Colocasia. From *kolokasia*, the Greek for the root of an Egyptian plant. *Linn. Monœcia-Heptandria.* Nat. Ord. *Araceæ.*

An interesting genus closely allied to the *Caladium*, most of the species being known under that name. *C. macrorhiza* is a beautiful green-house plant, remarkable for the bold and distinct markings of the foliage, consisting of light green and pure white. *C. esculenta* is a favorite plant for single specimens on the lawn, or for borders of a sub-tropical group, in a deep, rich soil. If freely watered, the leaves will sometimes grow four feet in length by three feet in width. This species is grown extensively in the Sandwich Islands for food, and is called by the natives *Tara*, the root being eaten like Potatoes, and the leaves cooked like Spinach. The roots are also eaten by the negroes in the Southern States, and are called by them *Tanyah.*

Cologania. In honor of the family of *M. Cologan*, of Port Oratavo, in Teneriffe, from whom the men of science, visiting that island, experienced the greatest hospitality. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Fabaceæ.*

A small genus of evergreen climbers, allied to the *Clitoria*, and requiring the same treatment. The flowers are of a lively purple, generally in pairs at the axils of the leaves. They are natives of Mexico. Introduced in 1827.

Colt's Foot. See *Tussilago.*

Columbine. See *Aquilegia.*

Columbo. See *Frasera.*

Columnea. Named after *Fabius Columna*, an Italian nobleman. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

A small genus of curious and beautiful green-house plants, natives of New Grenada. The species are divided between climbers and shrubs. The flowers of the climbers are mostly yellow and orange; of the shrubs, rose and purple. They are propagated by cuttings, and should be carefully watered. They require but little at any time. They will grow on blocks of wood, with moss, suspended in the green-house. Introduced in 1850.

Combretum. An ancient name adopted from Pliny. *Linn. Octandria-Monogynia.* Nat. Ord. *Combretaceæ.*

This genus contains several species, all remarkable for the elegance and brilliant colors of the flowers, which are produced in large panicles. They are desirable for covering the roof or columns of an extensive hot-house. They grow well in a mixture of leaf mould and loam, and require to be pruned back closely every winter, as it is on the young wood only that flowers are produced. Most of the species are from South America and Africa. Propagated by cuttings of well-ripened wood.

Comesperma. From *kome*, hair, and *sperma*, a seed; in reference to the seeds being enveloped with hairs. *Linn. Monadelphia-Octandria.* Nat. Ord. *Polygalaceæ.*

A small genus of green-house evergreens from Australia. Their handsome flowers of yellow, white, or purple, borne on terminal or axillary racemes, make them desirable plants. They are easily grown in an ordinary green-house. Propagated by cuttings.

Comfrey. See *Symphytum.*

Commelyna. Dill, Day Flower. Named after *J.* and *G. Commelyn*, famous Dutch botanists. *Linn. Triandria-Monogynia.* Nat. Ord. *Commelynaceæ.*

An extensive genus of annuals and perennials, hardy and green-house trailers, found throughout the Southern States and in South America. It is only the hardier species that can now be considered worth cultivation. *C. cœlestis* forms an excellent border plant. Its flowers are blue, of a brighter shade than perhaps is to be found elsewhere in the whole range of vegetable forms. The tubers of this plant should be taken up in winter, and, indeed, receive the treatment of Dahlias, except that they do not require to be placed in any elevated temperature to induce them to start into growth. The annual species should be sown in March where they are to remain.

Comparettia. Named after *Comparetti*, an Italian botanist. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of epiphytal Orchids, with small rose, purple, or scarlet flowers, produced in small bunches on long stalks. They are natives of Mexico and South America, and succeed best when grown on cork, with a little moss, in a shaded house. The flowers retain their beauty a long time. Introduced in 1838.

Comptonia. Sweet Fern. Named after *Bishop Compton*, an ardent cultivator of exotics and patron of botany. *Linn. Monœcia-Triandria.* Nat. Ord. *Myricaceæ.*

A hardy deciduous shrub, common through-

out the Northern States on poor soils. It is popularly known as Sweet Fern from its aromatic scent, and the resemblance of the leaves to the fronds of the *Aspleniums*. A decoction or tea made of the leaves is useful, applied externally, in cases of poisoning by the Poison Ivy.

Conanthera. From *konos*, a cone, and *anthera*, an anther, or pollen bag; in reference to the six anthers forming a cone in the early stage of the flower. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

This is a small genus of Chilian bulbs, but little known because of the difficulty of preserving them. They produce beautiful blue flowers in panicles on a stalk about one foot high. They require, like all Chilian bulbs, a light, dry soil. They will endure our climate with but little protection, if kept nearly dry during winter. They are rapidly increased by offsets. Introduced in 1823.

Cone Flower. See *Rudbeckia.*

Conium. Poison Hemlock. From *konos*, to whirl around; in reference to the giddiness caused by eating the leaves. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apiaceæ.*

This genus is almost identical with *Cicuta*, or Water Hemlock. *C. maculatum* is a strong-growing, branching herb, the juices of which are deadly poisonous. Common in marshy places. Naturalized from Europe.

Conoclinium. Mist-Flower. From *konos*, a cone, and *kline*, a bed; from the conical receptacle. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

C. cœlestinum, the only species of much interest, is a hardy herbaceous perennial, with terminal corymbs of violet-purple or blue flowers, common in the Southern and Western States. It is commonly called *Eupatorium*, from which it differs only in the receptacle. They are rapidly increased by division or from seed.

Conopholis. Squaw Root, Cancer Root. From *konos*, a cone, and *pholis*, a scale; resembling a fir cone. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Orobanchaceæ.*

C. Americana is a very singular little plant, common in oak woods, growing in clusters among fallen leaves. The plant is a fleshy herb, chestnut-colored or yellowish throughout, and as thick as a man's thumb. The stem is without leaves, scaly, and generally simple. The flowers are in terminal spikes, and not showy. In this country it is popularly known as Cancer Root, from its supposed medicinal properties.

Conostephium. From *konos*, a cone, and *stephanos*, a crown; referring to the disposition of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Epacridaceæ.*

A genus of fruit-bearing *Epacridaceæ*, valued for its beautiful flowers by gardeners who delight in growing plants that can only be grown with the greatest difficulty, to which class this plant belongs. The fruit, though wholesome, is not generally liked. The Native Currant of New-Holland belongs to this section. Propagated by cuttings. Introduced from Swan River in 1836.

Conostylis. From *konos*, a cone, and *stylos*, a style; the style, or female organ, grows in the shape of a cone at the bottom. *Linn. Hexandria-Monogynia.* Nat. Ord. *Hæmodoraceæ.*

A small genus of green-house herbaceous perennials from New Holland, rather ornamental, but not of sufficient merit for general cultivation. Propagated by division of roots.

Convallaria. Lily of the Valley. From the Latin *convallis*, a valley, and *rica*, a mantle; in reference to the dense covering formed by the leaves. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

The Lily of the Valley, *C. majalis*, is a plant so well known, and such a universal favorite, that little need be said by way of description, unless we add that of Gerarde in 1596, which is as follows: "The Lilly of the Vally hath many leaves like the smallest leaves of Water Plantaine, among which riseth vp a naked stalke, halfe a foot high, garnished with many white floures, like bels, with blunt and turned edges, of a strong savour, yet pleasant enoughf, which being past, there come small, red berries, much like the berries of asparagus, wherein the seed is contained." A modern writer in the Treasury of Botany says: "Without poetical or fanciful conventionalities, the Lily of the Valley is as perfect an emblem of purity, modesty, and humility as the floral world can afford. It may seem idle to observe that a flower of this description cannot be that referred to in the sermon on the mount; but as that opinion is frequently broached in popular works, it may simply be observed that it never grows in the open field, and that there is nothing in its array to which the term 'glory' is applicable. Not a little unprofitable commentary might have been spared if the same general meaning had been attached to the term 'Lilies of the Field' which has, by common consent, been ascribed to the parallel phrase 'Fowls of the Air,' while the passage itself would have gained in force and dignity by being kept clear from botanical disquisitions." The flowers of the Lily of the Valley are used during the winter months in immense quantities, New York city alone probably using a million, the average price of which is about five cents each, so that for this flower alone $50,000 is annually paid by the bouquet makers to the florist, the consumer paying, no doubt, one-third more. The Lily of the Valley is nearly all imported from Germany and France, usually in single crowns or "pips." The method of culture is to place these thickly together in shallow boxes, as soon as received in November, placing them in a cold frame, or in the open ground, covering them up so that they do not get severely frozen. They should remain in this condition at least four weeks before they are brought in to force, which should be done gradually, beginning at 50° and running up to 65° or 70°. If taken every few weeks, a succession may be kept up from January until May. In fact, the flowers are now to be had all the year round, as some growers find it sufficiently profitable to keep the roots in refrigerators, and, thus retarded, they are forced to bloom at will at any time during the summer or fall months. This same system might be used with many other plants, but it is only in very valuable flowers such as this that the expense would be justified. The plant does well in the garden, and may be put under the shade of trees; but wherever placed, the roots should not be disturbed for several years, if at all, as many clumps will not otherwise bloom. Propagated by division.

Convolvulus. From *convolvere*, to entwine; in reference to their twining habit. *Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ.*

Well-known, splendid climbing plants, hardy and half-hardy, annual and perennial. They should be trained against stakes or trellis-work, as their stems are too feeble to support them-

selves. Most of the tender kinds of Convolvulus were separated from it by Linnæus, and formed into the genus *Ipomœa*. All the tender kinds may be made to flower in the open air during summer; and the hardy species only require sowing in the open ground. *C. minor*, (tricolor), a dwarf-growing species, is a native of Spain and Portugal. The flowers are often pure white, but generally variegated with blue and yellow, or blue and white; the more beautiful kind is a bright blue, gradually changing to a pure white in the center. The form of this flower is no less beautiful than the color. The plant spreads with much regularity in every direction from the center, so that a bed of them, with the plants two feet apart each way, will form a compact mass resembling a single plant. It is scarcely exceeded in elegance by any plant in the border when in full flower. The flowers continue open all day if pleasant, but close in case of rain. Seed should be sown as soon as the ground can be got in good order in spring. If started in the green-house in pots, it makes a charming plant for hanging baskets, rustic work, or the window. This species has been noticed for more than 250 years in Herbals.

Cooperia. Named after *Mr. Cooper*, gardener for many years at Wentworth House, in Yorkshire, England. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of bulbous plants from Texas, allied to the *Zephyranthes*. *C. Drummondiana*, typical of the species, has narrow twisted leaves twelve to eighteen inches long, and a scape six to twelve inches high, bearing at the end a single flower, of which the tube is upward of four inches long, of a greenish color, and the limb upward of an inch long and pure white. The flower always expands in the evening, and is not usually perfect after the first night. The nocturnal flowering of this plant is an anomaly in the order, and the more remarkable because its nearest relatives require full sunshine to make them expand. The flower has the fragrance of the Primrose. These bulbs are half-hardy, and will endure our winters with a slight protection if grown in a light, sandy soil, which is the one best suited to them. For effect they should be planted in clumps, and quite close together. Propagated by offsets. Introduced in 1835.

Copaifera. From the Brazilian name *copaiba*, and *fero*, to bear. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A tender evergreen tree, native of Brazil, valuable only for the medicinal properties of the balsam it yields.

Coprosma. From *copros*, dung, and *osme*, a smell; the plants have a fetid smell. *Linn. Tetrandria-Digynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of green-house evergreen shrubs of easy culture, and of little interest except in their own country, where the leaves are used by the New Zealand priests to discover the will of the gods. The leaves are attached with a cord of flax to sticks, which are laid on the ground, each stick representing a separate party. The priests retire to pray, and after a time the chiefs are summoned to examine the sticks, which are found to have been moved, and some have disappeared entirely. This is considered a certain sign that one of the party will be destroyed. Others are found turned over. If the leaf be turned down the omen is bad; but if the reverse should occur, it is a sign that the party represented by the stick will prosper in his undertakings. *C. Baueriana variegata* is a strikingly beautiful plant for the green-house and conservatory, or for a place on the lawn in summer. Propagated by cuttings.

Coptis. Goldthread. From *kopto*, to cut; in reference to the division of the leaves. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

C. trifolia, the only species, is a beautiful little evergreen herb, with creeping root-stocks, common in boggy places from Maryland northward. The long, bright yellow fibers of the root have caused it to receive the common name of Goldthread. The roots are very bitter, and are used in medicine as a tonic. It formerly held a prominent place among domestic remedies, and was considered invaluable for sore mouths in children.

Corallorhiza. Coral Root. Said to be from *korallion*, a coral, and *rhiza*, a root. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of curious little Orchids, common in wet or boggy places throughout the United States. Their leaves are like small scales, of a yellowish color, like their stems; the flowers are small, in a loose terminal spike. *C. innata*, one of the more common species, is a slender plant, from six to nine inches high, of a pale color, and remarkable for its root-stalk, which is formed of a number of short, thick, whitish fleshy fibers, divided into short, blunt branches, and densely interwoven, resembling coral; hence the popular name. All the species are incapable of cultivation, or, at least, they so rarely live when removed, that it is considered a useless task to attempt it.

Coral Root. See *Corallorhiza.*

Coral Tree. See *Erythrina.*

Corbularia. From *corbula*, a little basket; in reference to the shape of the nectary. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus, commonly called Hoop Petticoats, and has recently been separated from *Narcissus*. The species are quite ornamental and perfectly hardy, but, like most of what are usually termed "Dutch Bulbs," they do best with a slight protection of leaves or coarse manure. Propagated by offsets. A native of Portugal. Introduced in 1629.

Corchorus. From *kore*, a pupil, and *koreo*, to purge; in allusion to the laxative qualities of some of the species. *Linn. Polyandria-Monogynia.* Nat. Ord. *Liliaceæ.*

An extensive genus of annuals and herbaceous plants, inhabitants of both hemispheres. As ornamental or flowering plants they are of little value. They are much grown in many sections of India for the exceedingly valuable fiber they yield, which is known under the name of Jute, and which forms an important article of commerce.

Cord Grass. See *Spartina.*

Cordyline. Club Palm. From *kordyle*, a club. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus of green-house evergreen shrubs, allied to *Dracæna*. The type, *C. indivisa*, has usually been sold in this country under the name of *Dracæna indivisa*. It is an exceedingly useful plant for large specimens upon the lawn, or for jardinières, baskets, or vases, as it will withstand some neglect and thrive where many other plants would perish. This species was introduced from New Zealand in 1850, and is propagated from seed, which should be sown in boxes on bottom heat in the green-house. As soon as the plants are three inches high, prick out in small pots.

The young plants require a high temperature and liberal waterings.

Coreopsis. From *koris*, a bug, and *opsis*, like; referring to the appearance of the seeds. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Asteraceæ.*

Most of the showy annuals formerly known by this name are now called Calliopsis, while most of the perennial species are still left in the former genus. For the difference between the derivation of the two names, and the culture of the annual species, see *Calliopsis.* The perennial kinds are quite hardy; but as they are tall growing, spreading plants, they require a great deal of room, and should be planted at the back of the borders. They will grow well in the border. They are propagated by division of the roots, or from seed, which should be sown as soon as ripe, where it is to remain. It will flower early the following summer. The many species are found from South Carolina southward to Mexico.

Coriandrum. Coriander. From *koris*, a bug; referring to the smell of the leaves. *Linn. Pentandria-Digynia.* Nat. Ord. *Umbelliferæ.*

C. sativum, the only species, is a hardy annual, and a native of the south of Europe. It is a plant of little beauty, and of the easiest culture. It is grown only for its seeds, which are quite aromatic, and much used in flavoring. The odor and taste depend upon a volatile oil.

Cork Tree. See *Quercus suber.*

Cornel. See *Cornus.*

Corn Flag. See *Gladiolus.*

Corn Salad. See *Valerianella.*

Cornus. Dogwood. From *Cornu*, a horn; in reference to the hardness of the wood. *Linn. Tetrandia-Monogynia.* Nat. Ord. *Cornaceæ.*

A genus consisting principally of trees and shrubs. Some of the latter are very ornamental, the bark of the branches being of a brilliant, glossy red in winter, and the leaves of an intense purplish red in autumn. *C. florida*, or Flowering Dogwood, is a tree growing from twelve to thirty feet high, and is common in rocky woods from New York southward. It is an interesting species, not only for its symmetrical growth, but for its large showy flowers, or rather the involucres which surround the flowers, (which are pure white inside and tinged with violet on the outside,) and the showy fruit which succeeds them. It is an appropriate and popular tree for cemeteries, and a fine ornament for the lawn.

Coronilla. From *corona*, a crown or garland; in reference to the arrangement of the flowers. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of pretty annual and perennial plants found in Europe, Asia Minor, and North Africa, but in the greatest abundance in countries bordering on the Mediterranean Sea. Several of the green-house species are very pretty flowering shrubs of easy culture. *C. glauca* produces its bright yellow, pea-shaped flowers in abundance during the winter. Propagated by cuttings or from seeds, which ripen freely. The species have been long under cultivation.

Corpse Plant. One of the popular names of the *Monotropa uniflora*, a low-growing parasite on roots, or growing on decomposing vegetable matter like a fungus. It is also called *Indian Pipe.*

Correa. Named after *Joseph Correa*, a Portuguese botanist. *Linn. Octandria-Monogynia.* Nat. Ord. *Rutaceæ.*

A genus of green-house evergreen shrubs, natives of New South Wales, New Holland, and Australia, where they are sometimes called Fuchsias, from the slight resemblance the flowers have to the Fuchsia. Several of the species have long been grown in green-houses for the beauty of their flowers, which are white, scarlet, or green; produced in June. The leaves of *C. alba* are said to be a very good substitute for tea. They are increased by cuttings. Introduced in 1793.

Coryanthes. Helmet Flower. From *korys*, a helmet, and *anthos*, a flower; in reference to the shape of the lip or labellum. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A genus of epiphytal Orchids found in Mexico and South America. Among the many curious forms peculiar to this genus, perhaps the most singular is that of *C. macrantha*, which is thus described in the *Botanical Register:* "The plant has the habit of a *Stanhopea*, and pushes forth from the base of its pseudo-bulbs a pendulous scape, on which two or three flowers are developed. Each flower is placed at the end of a long, stiff, cylindrical-furrowed ovary, and when expanded measures something more than six inches from the tip of one sepal to that of the opposite one. The sepals and petals are nearly of the same color, being of an ochrey yellow, spotted irregularly with dull purple. The lip is as fleshy and solid in its texture as the sepals and petals are delicate. It is seated on a deep purple stalk, nearly an inch long; this stalk terminates in a hemispherical, greenish-purple cup or cap; and the latter, contracting at its front edge, extends forward into a sort of second stalk of a very vivid blood-color, the sides of which are thinner than the center, turned back, and marked with four or five very deep, solid, sharp-edged plaits. These edges again expand and form a second cup, less lobed than the first, thinning away very much to the edges, of a broadly conical figure, with a diameter of at least two inches at the orifice; this second cup is of an ochrey yellow, streaked and spotted with pale crimson, and seems intended to catch a watery secretion, which drips into it from the succulent horns, taking their origin in the base of the column, and hanging over the center of the cup." There are several species of the genus, all of which must be grown in a hot-house. Propagated by division. They flower in June and July.

Corydalis. From *korydalos*, a lark; the spur of the flower resembling that of the lark. *Linn. Diadelphia-Hexandria.* Nat. Ord. *Fumariaceæ.*

A handsome genus of hardy tuberous-rooted, herbaceous plants. Their flowers are showy, and of many shades of color. They need an open exposure. The perennial kinds may be increased by division of the tubers about every three years. The annual species require to be sown in March where they are to remain. Several of the species are indigenous, growing in rocky places. They grow from one to three feet high, bearing flowers of various colors. They are easily propagated by seeds, and are very pretty plants for rock-work.

Corylus. Hazel-nut, Filbert. From *korys*, a hood or helmet; in reference to the calyx covering the nut. *Linn. Monœcia-Polyandria.* Nat. Ord. *Corylaceæ.*

This well-known deciduous shrub is common throughout this country and Europe. The species that yields the Filberts of commerce, *C. Avellana*, is found growing in great abundance near Avellana, a city of Naples, whence the specific

name. It is a strong growing shrub, from ten to fifteen feet high. The Filbert is monœcious; the male catkins make their appearance in September, on the previous year's growth, but are not fully developed or expanded until the succeeding season, when the female flowers appear about the first of February, and in April they are in full flower. The flowers are small, and of a beautiful red color. The fruit of this species forms an important article of export from Naples. *C. Colurna*, a native of Turkey and Asia, is a tall-growing tree, often reaching a height of sixty feet. The nuts are larger than those of the preceding species, and are of excellent quality. This country is represented by two species, *C. Americana* being our common Hazel-nut. The fruit is smaller and thicker-shelled than the European species.

Corypha. Fan Palm. From *koryphe*, the summit; in reference to the leaves growing in tufts on the top of this Palm. *Linn. Hexandria-Monogynia.* Nat. Ord. *Palmaceæ.*

A noble genus of Palms, growing from fifteen to one hundred and fifty feet high. They are chiefly natives of tropical Asia. The Talipot Palm, *C. umbraculifera*, is a native of Ceylon and the Malabar coast, where it usually grows sixty to seventy feet high. The leaves have prickly stalks six or seven feet long, and when fully expanded they form a nearly complete circle of thirteen feet in diameter. Large fans are made of these leaves, which are carried before people of rank among the Cingalese. They are also commonly used as umbrellas, and tents are made by neatly joining them together, being the only ones in use for the soldiers of that country. It bears no fruit until the last year of its life, when it throws out great branches of beautiful yellow flowers that emit a most disagreeable odor. The fruit is borne in great abundance, is very hard and round, and about the size of a large cherry. From these the plant is propagated, and requires great heat and a humid atmosphere to grow it successfully. This species was introduced in 1742.

Cosmelia. From *kosmeo*, to adorn; in reference to the beauty of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Epacridaceæ.*

The only species, *C. rubra*, is a beautiful dwarf green-house plant, with bright red flowers resembling those of an Epacris, but larger and more swollen in the middle of the tube. It requires to have plenty of air, and is improved by frequent stopping while young. Propagated freely from cuttings.

Cosmos. From *kosmos*, beautiful; in reference to the ornamental flowers. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

Mexican plants, generally grown as annuals, but which mostly have tuberous roots like the Dahlia, and may be treated like that plant. The flowers are very showy, and of a reddish purple; and the seeds, when the plants are grown as annuals, should be sown in March or April, in the open ground; or in autumn, if the young plants can be protected during winter. The plants will grow four or five feet high in any garden soil. Introduced in 1799.

Cossignia. Named after *M. Cossigny*, a French naturalist. *Linn. Hexandria-Digynia.* Nat. Ord. *Sapindaceæ.*

There are but two known species in this genus, both small evergreen trees, with pinnate leaves, with from one to three pairs of oblong leaflets and an odd one. The upper surface of the leaves is richly veined with golden yellow, the under surface covered with short white down. The flowers are small, white, and arranged in terminal panicles. They were introduced from the Mauritius in 1824. Propagated by cuttings.

Cotton. See *Gossypium.*

Cotton-Grass. The common name of the genus *Eriophorum.*

Cotton-Wood. See *Populus.*

Cotyledon. Navelwort. From *kotyle*, a cavity; in allusion to the cup-like leaves. *Linn. Decandria-Pentagynia.* Nat. Ord. *Crassulaceæ.*

A genus of succulent plants, with fleshy leaves, nearly allied to the House-leek, and bearing red or yellow flowers. They are plants of no great beauty, but interesting from the manner in which they are popularly supposed to feed: the surface of the leaves is covered with myriads of pores or mouths, through which they are supposed to take their nourishment, the roots seeming only necessary for holding them in position. The ornamental species are all from the Cape of Good Hope, and were first introduced in 1690. Propagated by cuttings and leaves. They require an open, sandy soil.

Couch-Grass. The popular name of *Triticum repens.*

Coulteria. In honor of *Thomas Coulter, M.D.*, a botanical author. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A genus of ornamental hot-house shrubs, that grow from twelve to fifteen feet high, and produce an abundance of yellow and orange flowers. Their size prevents them from being grown except in botanical collections. The wood of some of the species is used in dyeing.

Coutarea. From *coutari*, its name in Guiana. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

This fine evergreen tree is allied to Cinchona. It requires the same treatment, and its bark has much the same medicinal properties.

Cowania. In commemoration of the services rendered to botany by the late *Mr. James Cowan*, a merchant, who visited and introduced a number of plants from Mexico and Peru. *Linn. Icosandria-Trigynia.* Nat. Ord. *Rosaceæ.*

C. plicata, the only species, is one worth far more attention than it has hitherto received. Its flowers are large and handsome, resembling those of a Rose. They are bright red, and, in addition, the plant is of robust character, nearly hardy, requiring only to be protected from severe frosts. Propagated by division. It is a native of Mexico.

Cowbane. The popular name given the genus *Archemora*, reputed to be an active poison, particularly to cattle, if eaten by them. It is quite common in swampy grounds, from New York to Illinois and southward. It is also called *Wild Parsnip.*

Cowberry. One of the common names of *Vaccinium*, which see.

Cow-Herb. See *Vaccaria.*

Cow-Itch. See *Mucuna.*

Cow-Parsnip. The common name of *Heracleum*, a coarse growing, weedy plant, sometimes used in medicine, but of doubtful reputation.

Cowslip. See *Primula.*

Cow-Tree. See *Brosimum.*

Crab-Apple. See *Pyrus.*

Crab-Grass. Called also **Dog's Tail**, or **Wire-Grass**, popular names of the genus *Eleusine*, a native of India, but extensively naturalized in this country.

Crambe. Sea-Kale. The name *crambe* is derived from the Greek name for Sea-cabbage. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

A genus of hardy perennials. *C. maritima*, the best known species, is a native of the west coast of England, where it grows in great abundance in the clean sand and gravel. The common people have, from time immemorial, been in the practice of watching the appearance of the shoots and leaf-stalks closely, as they appear in early spring, when they cut them off under ground in the same manner as we do Asparagus. These young shoots, when cooked, are by many considered superior to either Asparagus or Cauliflower. Sea-Kale is only fit for use in a blanched state, which is easily done. In early spring the crowns should be covered with sand, or some light mulching that will exclude the young shoot from the light, the covering being from twelve to fifteen inches in depth. By the time the young leaves are through this mulching they will be perfectly blanched and fit for use. It is a common practice with gardeners to cover the crowns with an inverted flower-pot, and by others the whole bed is covered with manure. Either plan will prove satisfactory. Sea-Kale is increased by seed or root cuttings, the latter plan being preferable. The roots should be taken up in the fall, cut in pieces two to three inches long, and these placed in boxes of sand in a dry cellar until February or March. They are then strewn on the surface of a hot-bed, where, in a week or two, they will emit roots and tops, and they should then be potted to harden them off. As soon as the weather is settled, plant out in rows, three feet apart and two feet between the plants. With this treatment the crowns, under favorable circumstances, will be strong enough to yield a crop the next season.

Cranberry. See *Oxycoccus.*

Cranberry-Tree. See *Viburnum opulus.*

Crane-fly Orchis. See *Tipularia.*

Cranesbill. See *Geranium.*

Crape Myrtle. See *Lagerstrœmia.*

Crassula. A diminutive of *crassus*, thick; in reference to the fleshy leaves and stems. *Linn. Pentandria-Monogynia.* Nat. Ord. *Crassulaceæ.*

Succulent green-house plants, natives of the Cape of Good Hope, with heads of red or white flowers. All the Crassula should have alternate seasons of stimulus and repose. When they are growing, and about to flower, they should be well watered, and when the flowers begin to fade, the supply of water should be gradually lessened, till at last very little is given. The plants are propagated by cuttings, which should be laid on a shelf two or three days to dry before planting, or they may rot. Most of the species are from the Cape of Good Hope, and have been in cultivation more than a century.

Crasswort. See *Crucianella.*

Cratægus. The Hawthorn. From *kratos*, strength; in reference to the strength and hardness of the wood. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Pomaceæ.*

A well-known family of moderate-sized trees, commonly called thorns. They are found throughout the United States, Europe, and the temperate regions of Asia and Africa. There is a great resemblance to each other in all the species, both as to the shape of the leaves and color of the flowers. The English Hawthorn, *C. oxyacantha*, so commonly used as a hedge plant, will not stand the severity of our winters, at least much north of New York, with a certainty that

would warrant its use here. Single specimens are often met, in old gardens, of great age and size. The Hawthorns are remarkable not only for their fragrant flowers and ornamental fruit, but for the variations common in both. The flowers are usually white, but in the cultivated varieties vary to pink and crimson. The fruit is sometimes globular, sometimes oblong, but generally smooth and polished, and in some quite downy; while the color is from black to orange-yellow and white. The double-flowering varieties are especially beautiful. Some of our native species are among the most ornamental low trees we have in our gardens, being, when in bloom, completely covered with pure white flowers of delicious fragrance. From the time of their coming into flower they have been quite commonly called the May-tree. From the perfect hardiness of the species, their ornamental appearance both in flower and fruit, which never fails, they should be cultivated to the exclusion of the foreign kinds. Propagated usually by seeds, which not unfrequently take two years to germinate. A double-flowering variety, sent from France, is a tree of great beauty, the flowers being bright rosy pink, not unlike the flowering Almond, but of greater substance. This variety is not considered hardy north of Philadelphia. The great drawback to its culture is its being subject to the attacks of the "borer." It is propagated by cuttings or by budding on the more common varieties. The whole species grow well in a soil that is naturally dry; wet or marshy situations are wholly unsuited to them.

Crazy Weed. See *Astragalus.*

Crawfurdia. In honor of *Sir John Crawfurd*, Governor of Singapore. *Linn. Pentandria-Digynia.* Nat. Ord. *Gentianaceæ.*

This genus consists of two species, both herbaceous climbing plants, closely allied to, and formerly included in, the genus *Gentiana*. *C. Japonica*, (Climbing Gentian,) a native of Japan, is an exceedingly beautiful plant, attaining a height of six feet, and producing large axillary bell-shaped flowers of a deep blue color. *C. fasciculata*, (fascicle flowered,) a native of the Himalayas, is a similar species, but not so tall. Propagated by division or from seed. Both species are of recent introduction into the garden.

Creeping Forget-me-not. See *Omphalodes.*

Creeping Charlie. A popular name of *Lysimachia.*

Creosote Plant. See *Larrea.*

Cress. See *Lepidium.*

Cressa. From *cressa*, a native of Crete; the plant is plentiful there. *Linn. Pentandria-Digynia.* Nat. Ord. *Convolvulaceæ.*

A curious little annual, rarely seen in our collections. The flowers are funnel shaped, of a lively purple, and freely produced. It requires but little care or nursing, if planted in a light, rich soil. There is but one species, *C. Cretica*, which is a native of the Levant. Introduced in 1822.

Crinum. From *krinon*, the Greek name of the Lily. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

This is a fine genus of bulbous plants, growing from a foot and a half to five feet in height. The flowers are large, produced freely in umbels, and many of them are richly scented and of pleasing colors. To grow them well they should be potted in rich loam full of fibrous matter, and, in the early part of the growing season, should have the benefit of a moderate

bottom heat, with abundance of water every day, and an additional soaking of liquid manure about once a week. In winter, of course, this must be discontinued, and the plants placed where they may receive all the light possible, in order to mature the new growth, and induce them to flower freely the following season. *C. amabile* is a noble species, requiring to be grown in a strong heat. The bulbs sometimes grow six to eight inches in diameter, and two feet long, and sometimes produce, both spring and fall, immense spikes of dark purple flowers, of delicious fragrance. This species is a native of the East Indies, and was introduced in 1810. The genus is very large, and the species are found in nearly all tropical and sub-tropical countries. Propagated by offsets.

Cristaria. From *crista*, a crest; in reference to the form of the seed vessel. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

A pretty hardy herbaceous perennial from the Southwestern States, producing quite showy scarlet flowers in terminal racemes or clusters. Propagated by division of roots or from seeds, that require some time to produce flowering plants.

Crocus. A Chaldean name, applied by Theophrastus. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

Of this well-known genus there are many species, mostly found in the southern and eastern parts of Europe, and in Asia Minor. As a garden flower the species are almost entirely lost sight of in the large number of varieties that have been produced by hybridizing. They are divided into two classes: the first, those that flower in early spring, too well known to need description; the second, the autumnal flowering or naked Crocus, so called because the flowers are produced in the absence of leaves, which, with the seeds, are thrown up in the spring. The spring Crocus is of the easiest culture, and we need only remark, that it is a mistake to put them into poor ground, since no plants in our gardens delight more in, or make greater returns for, rich soil. They require a dry situation, and in such a place and soil they flower profusely. The bulbs or corms should be planted at least three inches deep; for, as the new corm forms above the old one, they will in three or four years push themselves out of the ground if planted too near the surface. As often as once in three years the corms should be taken up, separated, and planted out as quickly as possible; the longer they are left out of ground the weaker they become, and the later they will come into bloom. In starting a new bed the corms should be planted as soon as they can be obtained, which is usually about the first of September. If left until November, as is the too common practice, very few will flower strongly the coming season, and none satisfactorily. When left in the ground, they commence new life about the first of September, and before winter they have their preparations for spring work complete; the flower buds will be nearly their full length above the bulb, ready for the first sunny days in March to break forth into bloom. One of the peculiarities of the Crocus is, that when they are in flower, the germen or seed vessel is still under ground, almost close to the bulb; and it is not till some weeks after the flower has decayed that it emerges on a white peduncle, and ripens its seeds above the ground. The situation for the Crocus bed should

be a warm one, and before hard frosts it may be mulched two or three inches with leaves or coarse litter, which is to be taken off as soon in spring as the season will warrant. The mulching, however, may be omitted where it is not convenient to apply it. *C. sativus*, which is the type of the autumnal flowering species, should be planted in midsummer, and it will come into flower in September. All the species and varieties are increased by offsets. Their introduction into British gardens dates back as far as 1600. The new named varieties introduced recently bear very large flowers, and are, in all respects, very great improvements upon the older kinds.

Crotalaria. From *krotalon*, a castanet; the seeds are inflated pods, and rattle when shaken. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

This is an extensive genus, and a few of its species are particularly beautiful. The greenhouse kinds are to be preferred. All of them grow readily in loamy soil, the chief point in their culture being to observe that the young shoots are stopped once or twice in the early part of their growth, in order to counteract their natural tendency to grow upright, and become what is technically expressed as "long-legged." One of the principal discouragements in growing these plants is the difficulty of preserving them from the attacks of the red spider. The annuals are grown from seed, and the perennial kinds are increased from cuttings. The species are pretty generally found from the West to the East Indies. Some of the annuals are found in the Southern States.

Croton. From *kroton*, a tick; in reference to the resemblance of the seeds. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Euphorbiaceæ.*

A genus of green-house evergreen shrubs of great beauty, grown for their variegated foliage, being among the most strongly marked plants in cultivation, (yellow and green, sometimes red with the other colors.) They are readily propagated by cuttings, with a bottom heat of not less than 75°, and require a high temperature and full sunlight to develop their markings. Leaf mould is an essential element in the compost for potting. Water should be sparingly used, particularly in winter. They do best in small pots. As ornamental plants for decoration, they have no superior. Notwithstanding their great beauty, they are also classed with the economic or useful plants. *C. Tiglium* furnishes the Croton oil, a most powerful purgative. *C. tinctorum* is used to dye both silk and wool of an elegant blue color. The substance for this purpose is called Turnsol, and is made of the juice which is lodged between the calyx and the seeds. *C. Eleuteria* furnishes the Cascarilla bark, which has a pleasant, spicy odor, and a bitter, warm, aromatic taste, and it is considered a valuable medicine. The species are nearly all natives of the East Indies, and were first introduced in 1748.

Crowea. Named after *J. Crow*, a British botanist. *Linn. Decandria-Monogynia.* Nat. Ord. *Rutaceæ.*

A genus of beautiful green-house shrubs, consisting of but two species, *C. latifolia* and *C. saligna*, both lovely objects when in flower, which is nearly two-thirds of the year. They are in the greatest perfection during the winter months. The flowers are lily-shaped, of a beautiful purple, and borne at the axil of the leaves. They are easily propagated from cuttings, and should be grown in a mixture of leaf mould and loam.

Water should be sparingly given, or the plants will have a sickly, yellow appearance. Both species are natives of New South Wales. Introduced in 1790.

Crowfoot. See *Ranunculus.*

Crucianella. Crosswort. A diminutive of *crux*, a cross; alluding to the leaves being placed crosswise. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Galiaceæ.*

A genus of hardy herbaceous and green-house plants of but little interest. *C. stylosa*, a native of Persia and the Caucasus, is a low-tufted herb with rose-colored flowers, which blooms during the greater part of the summer. It is a desirable plant for rockeries. Propagated by cuttings or from seed.

Cruel Plant. See *Physianthus.*

Cryptochilus. From *kryptos*, hidden, and *cheilos*, a lip; the lip or labellum being partly hidden by the sepals. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

An interesting genus of terrestrial Orchids from the cooler parts of India. There are but two species, one producing brilliant scarlet flowers on a one-sided spike, while the other has smaller yellow flowers produced in the same manner. They require the same treatment as *Stanhopeas.*

Cryptocoryne. From *kryptos*, hidden, and *koryne*, a club; the club-shaped spadix or spike in the center of the flower is hidden by the hooded spathe. *Linn. Monœcia-Diandria.* Nat. Ord. *Araceæ.* Allied to *Arum.*

Herbaceous perennial marsh plants with tuberous creeping roots. They produce the same peculiar-looking flowers as the Arums, but are sweet scented. They require the same treatment as the tropical species of Arum. Propagated by division. Introduced from the East Indies in 1824.

Cryptomeria. Japan Cedar. From *kryptos*, hidden, and *meris*, a part; the structure of all the parts of the flower being hidden, or not easily understood. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Pinaceæ.*

A splendid evergreen tree, from sixty to one hundred feet high, from the north of Japan, where it is found in moist situations. There is but one species, which is perfectly hardy, but requires a light sandy soil. Introduced in 1846.

Cryptostegia. From *kryptos*, hidden, and *stege*, a covering; alluding to the corona being concealed within the tube of the corolla. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

A small genus of pretty twining green-house shrubs, consisting of two species, (*C. grandiflora* and *C. Madagascariensis*,) the one from India, the other from Madagascar. They are interesting plants, having opposite leaves, and produce large, reddish-white flowers in terminal cymes. Propagated by cuttings. Introduced in 1818.

Cryptostemma. From *kryptos*, hidden, and *stemma*, a crown; the crown of the flower being hidden. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Asteraceæ.*

A small genus of tender annuals from the Cape of Good Hope. The flowers are bright golden yellow, borne on hairy stems, and are very showy. They were at one time very common, but have now fallen out of cultivation. The seed should be started in a hot-bed, and the young plants pricked out the latter part of May. They require a warm situation, and a light and rather sandy soil. One of the species

has flowers yellow inside and a very dark purple outside, which gives it a very showy appearance. Introduced in 1731.

Cryptostylis. From *kryptos*, hidden, and *stylos*, a style. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of brown-flowered terrestrial Orchids from New Holland, Java, and Ceylon. The species are more curious than beautiful. They should be grown in turfy loam and sand, in equal proportions, in an ordinary green-house temperature. Introduced in 1822.

Cuba Bast. The fibrous inner bark of the *Paritium elatum.*

Cuckoo-Flower. See *Cardamine.*

Cucumber. See *Cucumis.*

Cucumber Tree. The popular name of the *Magnolia acuminata*, the young fruit of which resembles a small cucumber.

Cucumis. Cucumber. From *Cucumis*, the Latin for Cucumber. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Cucurbitaceæ.*

Of the several species included in this genus, *C. sativus*, the common Cucumber, is the best known and of the most importance. It is an annual plant, a native of the East Indies, and was first introduced into England in 1573. In the East the Cucumber has been extensively cultivated from the earliest periods, as well as most of the other species of gourd. When the Israelites complained to Moses in the wilderness, comparing their old Egyptian luxuries with the manna upon which they were fed, they exclaimed: "We remember the fish which we did eat freely, the cucumbers and the melons." Isaiah, in speaking of the desolation of Judah, says: "The daughter of Zion is left as a cottage in a vineyard, as a lodge in a garden of cucumbers." In Syria and in India immense quantities are eaten by the common people. The probabilities are, however, that their Cucumbers are Melons, though mention is made of the cultivation of both, and late travelers mention large plantations over which constant watch is kept, and fires built at night to keep off the wild dogs and wolves. The many varieties under cultivation are great improvements on the original species; but where and when improvement commenced we have no record; and in looking over the field during the last thirty years, it is about as difficult to say when it will stop. When Cucumbers are grown under glass artificial impregnation of the flowers is indispensable to obtain perfect fruit.

Cucurbita. Gourd. From *curbita*, a gourd. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Cucurbitaceæ.*

This is an extensive genus of trailing annuals, producing what is commonly known as *ornamental gourds*, some of which are exceedingly curious and beautiful. They are of easy culture, requiring the same treatment as the Cucumber. They are natives chiefly of hot countries. They abound in India and South America, and a few are found in the north of Europe, and they are also met at the Cape of Good Hope and in Australia.

Cummingia. Named after the late *Lady Gordon Cumming*, of Altyro, near Forres, Scotland. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of beautiful little half-hardy bulbs from Chili, which succeed in a light rich soil, and should have the protection of a frame. The flowers are bell-shaped, light blue, and borne in panicles on slender scapes. Propagated by offsets. Introduced in 1823.

Cunila. Dittany. The derivation of this word is doubtful; by some botanists it is supposed to be from *konos*, a cone, and by others from *Cunila*, the name of a town. *Linn. Diandria-Monogynia.* Nat. Ord. *Lamiaceæ.*

Native hardy herbaceous perennials, common on dry hills from New York to Illinois and southward. They produce clusters of small white or purplish flowers from July to September. Propagated by root division.

Cunninghamia. In honor of two brothers, *J.* and *A. Cunningham*, British botanists in Australia. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Pinaceæ.*

C. Sinensis, the only known species, is a lofty evergreen tree, native of South China. It bears a close resemblance to the Araucarias, the foliage, however, being of a brighter green and less rigid. It is too tender for our climate, but its elegance makes it welcome in any conservatory where there is room for its development. Propagated from seed. Introduced in 1804.

Cupania. Named after *Francis Cupani*, an Italian monk, who wrote on botany. *Linn. Octandria-Monogynia.* Nat. Ord. *Sapindaceæ.*

A genus of ornamental green-house evergreen trees, chiefly natives of Mexico and the West Indies. The species vary in height from six to twenty feet, and produce beautiful white flowers. One species, *C. pendula*, a native of tropical Australia, is a lofty-growing tree, and furnishes the beautiful wood known as Tulip wood, so called from its Tulip-like markings. The species are increased by cuttings.

Cuphea. From *kuphos*, curved; referring to the form of the seed-pods. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Lythraceæ.*

An extensive genus of green-house evergreens and half-hardy annuals. With a few exceptions, such as *C. platycentra*, commonly known as "Segar Plant" and "Fire Cracker Plant," they are of but little merit. *C. platycentra* makes a beautiful border and room plant. It is propagated readily by cuttings, grows freely, and produces its scarlet and purple tubular flowers in great profusion nearly the whole year. Introduced from Mexico in 1815.

Cup Plant. See *Silphium.*

Cupressus. Cypress. From *kuo*, to produce, and *parisos*, equal; in reference to the symmetrical growth of some of the species. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Pinaceæ.*

An extensive genus of hardy evergreen trees, widely disseminated. *C. sempervirens*, the common European Cypress, is a native of Persia, but has for so long a time been generally planted throughout the East, that it is impossible to ascertain the section where it is indigenous. The timber of this species is highly esteemed for its durability, being considered superior to cedar. The doors of St. Peter's Church at Rome, which had been formed of this wood in the time of Constantine, showed no signs of decay when, after the lapse of eleven hundred years, Pope Eugenius IV. took them down to replace them by gates of brass. In order to preserve the remains of their heroes, the Athenians buried them in coffins of Cypress; and the chests or coffins in which the Egyptian mummies are found are usually of the same material. *C. thyoides* is the White Cedar or Cypress of our Southern States, a graceful and beautiful tree in its native home, but only thrives in wet places. There are several species found in California and Oregon, some of which are magnificent trees; others are graceful and ornamental shrubs. The beautiful *Retinosporas* of Japan are nearly related to this genus.

Curculigo. Derived from *curculio*, a weevil; the seeds having a process resembling the beak of that animal. *Linn. Hexandria-Monogynia.* Nat. Ord. *Hypoxidaceæ.*

A genus of green-house herbaceous plants, some of which have large, grassy, ribbed leaves beautifully recurved, making them suitable for conservatory decoration. A variety with striped foliage, green and white, of somewhat recent introduction, is one of our most ornamental foliage plants. *C. recurvata* is a native of Bengal, and was introduced in 1805. They are readily propagated by suckers, and grow freely in a mixture of turfy loam and sand.

Currant. See *Ribes.*

Curcuma. Turmeric. From *kurkum*, its Arabic name. *Linn. Monandria-Monogynia.* Nat. Ord. *Zingiberaceæ.*

An extensive genus of herbaceous perennials, natives of the East Indies, China, and Java. Most of the species possess the same aromatic stimulating properties in the roots, or rhizomes, and seeds, as the common ginger, and are plants of considerable beauty from their colored bracts. *C. longa* is one of the best known species, the powdered root of which is the Turmeric of commerce. This powder is used in India as a mild aromatic and for other medicinal purposes. It also enters into the composition of curry powder, and a sort of arrow-root is made from the young tubers. Turmeric is a dye of a very rich color, but it possesses no durability, nor has there been any combination of mordants found that would give it this quality in a sufficient degree to make it useful. Several of the species, with yellow or reddish flowers, are cultivated in the green-house.

Curmeria. Derivation of name not given. *Linn. Monœcia-Heptandria.* Nat. Ord. *Araceæ.*

A small genus of green-house herbaceous perennials, natives of Colombia. *C. Wallisii* is a dwarf-growing species, and of a very ornamental character. The leaves are spreading, and strongly marked with very irregular dark-green spots or blotches, intermixed with broad patches of very pale yellowish-green. *C. picturata* has broad green leaves, with a broad central band of silvery gray. The plants are of quite recent introduction, (1875,) and are highly esteemed in a collection of variegated-leaved plants. Propagated by offsets from the roots.

Cuscuta. Dodder. From *kechout*, its Arabic name. *Linn. Pentandria-Digynia.* Nat. Ord. *Cuscutaceæ.*

These plants are deserving of attention from their parasitical character, as they will attach themselves to, and grow on, any other plant within their reach. Their long twining stems emit an abundance of small fragrant flowers towards the end of summer. Their seeds germinate in the earth, but detach themselves as soon as sufficiently grown to take hold of a neighboring plant. They are natives of South America, New Holland, other tropical countries, and the United States. The *Cuscuta* is becoming troublesome in the Southern States by overrunning other vegetation. It is particularly so to Oleanders, several instances being reported where it has completely destroyed these beautiful shrubs.

Custard Apple. A popular name of *Asimina triloba*, or American Papaw.

Cyananthus. From *kyanos*, blue, and *anthos*, a

flower. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

C. lobatus is a delicate little hardy herbaceous plant from the higher ranges of the Himalayas, with a habit similar to some species of *Campanula.* Its requirements are a sandy soil, with plenty of moisture during the flowering season, but afterward it should be kept rather dry and allowed to rest. The flowers are terminal, and light blue. Propagated by cuttings.

Cyanella. A diminutive of *kyanos,* blue. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Pretty green-house bulbs, with white, blue, or yellow flowers. They grow readily in sandy loam, and, like all other plants of the same order, require to have a resting season, which, for convenience, is generally deferred to the winter. The protection of a cold frame is all they require to endure our winters. They increase freely by offsets. Natives of the Cape of Good Hope. Introduced in 1768.

Cyanophyllum. From *kyanos,* blue, and *phyllon,* a leaf; referring to the color of the under surface of the leaves. *Linn. Decandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

Of this exceedingly interesting plant we take the following description from Lowe's "Beautiful Leaved Plants:" "Native country, tropical America. Introduced in 1857 by Mr. Linden, a Continental nurseryman. A fine woody Melastomaceous hot-house shrub, which has not yet flowered in this country (England). The leaves are truly magnificent, growing two feet long and nine inches wide, of a long oval shape, tapering to a point. Upper surface a distinct ivory-like midrib, with a pair of veins of the same color running from the base near the margin and meeting near the point, joining near the midrib. Margin irregularly serrated. Color a deep velvety green; underneath the veins are visible, and the general color is a rich purplish crimson. Habit strong growing. Nothing can possibly exceed the beautiful foliage of this truly handsome new plant." The above description of *C. magnificum* will apply equally well to the other species. Propagated by cuttings.

Cyanotis. From *kyanos,* blue, and *ous,* an ear; referring to the shape of the petals. *Linn. Hexandria-Monogynia.* Nat. Ord. *Commelynaceæ.*

A small genus of evergreen trailing plants, allied to *Tradescantia,* and requiring the same general treatment. The species are showy plants, natives of tropical Asia. They are propagated readily by cuttings. Introduced in 1770.

Cyathea. From *kyatheion,* a little cup; in reference to the appearance of the spore or seed cases on the back of the leaves. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of arborescent Ferns, abundant in South America and in the West Indies, in India, the Eastern Islands, and in the Pacific Islands; a few are also met with in New Zealand and South Africa. In some the trunk is short, but in others it reaches a height of forty to sixty feet, and is crowned with a magnificent head of fronds, which are in many cases of gigantic size, and are always large. *C. medullaris,* a fine species of New Zealand and the Pacific Isles, and known in gardens as a noble Tree Fern of comparatively hardy character, forms in its native country a common article of food with the natives. The part eaten is the soft medullary substance, which occupies the center of the trunk, and which has some resemblance to Sago. *C. dealbata,* another beautiful species of New

Zealand, is said to be eaten in the same way. This has a trunk from ten to fifteen feet high, crowned with a noble tuft of fronds, which are white beneath with a silvery powder. Propagated by spores. First introduced in 1793.

Cyathodes. From *kyathos,* a cup, and *eidos,* like; because the nectary resembles that vessel. *Linn. Pentandria-Monogynia.* Nat. Ord. *Epacridaceæ.*

An interesting and somewhat extensive genus of green-house evergreens, natives of Australia, and occasionally met in New Zealand and the Pacific Islands. They produce small axillary white or yellow flowers. They require the same treatment recommended for the Epacris. Propagated by cuttings.

Cycas. The Greek name of a Palm said to grow in Ethiopia. *Linn. Dioecia-Polyandria.* Nat. Ord. *Cycadaceæ.*

A remarkable genus of ornamental plants, consisting of low-growing trees, with cylindrical, usually unbranched stems, terminated at the top by a crown of handsome, deeply cut, pinnate leaves of thick texture. *C. revoluta,* the finest of the species, is grown extensively in China and Japan, its native countries, for the pith contained in its trunk, and which is prepared by the natives into an article of food similar to the Sago, upon which they live wholly for several months in the year. They are commonly but erroneously called Sago Palms, as they furnish none of the Sago of commerce. The cultivation in our houses is the same required for all the Palm tribe; plenty of pot room, and a strong moist heat. *C. revoluta,* however, may be wintered in a low temperature, and its new growth retarded for the lawn. After the leaves have perfected their growth and are thoroughly hardened, the plants can be placed upon the lawn during summer, where they are most appropriate ornaments. Young plants are usually obtained from suckers. This genus was first introduced into England from China in 1737.

Cyclamen. From *kyklos,* circular; referring to the round leaves. *Linn. Pentandria-Monogynia.* Nat. Ord. *Primulaceæ.*

This genus contains some of our most popular and desirable plants for fall, winter, and early spring flowering. They are all neat and dwarf in habit; all have foliage of pretty form and beautiful markings, and the flowers, in every case, are beautiful, some exquisitely so. *C. Persicum* stands at the head of the family, and is the one in most general cultivation. The Cyclamen should be grown from seed, which should be sown as soon as ripe, in gentle heat, in pans filled with a compost of well-rotted manure, leaf mould, and coarse sand thoroughly incorporated. As soon as the plants have made two leaves, prick out into thumb-pots filled with the same compost, and place upon the shelf in the green-house, near the glass, and shade from direct sunlight. Carefully water; to dry them or drown them is equally fatal. As soon as the pots are filled with roots, shift into a three-inch pot, observing the same instructions in all respects. By the first of November they will require a five-inch pot. With proper care and attention, they will be in flower in January following planting. They require a more even temperature than is usually given to green-house plants, not above 60° nor below 50°; with it bulbs two inches in diameter can be grown in one year. After flowering they should be gradually ripened off, but never allowed to become thoroughly dry. During summer keep them

in a frame, shaded, and give occasionally a little water. They should be repotted again about the first of November, without breaking the ball, and the next flowering will be their perfection of bloom. This species is a native of Persia. All the species are famous for their acridity, yet in Sicily the Cyclamen is the principal food of the wild boars; hence the common name of *Sow-bread*.

Cyclobothra. From *kyklos*, a circle, and *bothros*, a pit; in reference to a cavity at the bottom of each sepal. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ*.

A genus of very handsome bulbous plants from California and Mexico. They are allied to the *Calochortus*, and require the same treatment. The flowers are nodding, like those of the Fritillarias, and of white, yellow, and purple colors. They are easily propagated by the small bulbs that grow on the upper part of the stems.

Cyclogyne. From *kyklos*, a circle, and *gyne*, a stigma, or female organ; in reference to the disposition of the pistils. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ*.

A very beautiful green-house evergreen shrub from Swan River. It is remarkable for the appearance of the pinnate leaflets, which are clad underneath with white hairs; and this, with the profusion of purple flowers it bears, renders it an attractive object. Propagated by seeds or cuttings.

Cycnoches. Swan Neck. From *kyknos*, a swan, and *auchen*, the neck; in reference to the long and gracefully curved column. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

Some of the species are considered indispensable to the Orchid house, for the beauty and delightful fragrance of the flowers. They require strong heat and moisture.

Cydonia. Quince. The name of *Cydonia* was given to this plant by the ancients, from its growing abundantly near Cydon, in the isle of Crete, now Candia. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Pomaceæ*.

The common Quince, *C. vulgaris*, has been under cultivation from a very early period. Pliny says: "There are many kinds of this fruit in Italy; some growing wild in the hedgerows, others so large that they weigh the boughs down to the ground." Martial, who died at Rome A.D. 104, states that the Romans had three sorts of Quinces, one of which was called Chrysomela, from its yellow color. They boiled them with honey, as the Europeans make marmalade. Botanical researches show that the Quince grows spontaneously on the hills and in the woods of Italy, in the south of France, in Spain, Sicily, Sardinia, the Crimea, and in the south of the Caucasus; it also grows abundantly on the banks of the Danube, and in the north of Africa. "The learned Goropius maintains that Quinces were the golden apples of Hesperides, and not Oranges, as some commentators pretend. In support of his argument he states that it was a fruit much revered by the ancients, and he assures us that there has been discovered at Rome a statue of Hercules that held in its hand three Quinces. This, he says, agrees with the fable which states that Hercules stole the golden apples from the gardens of the Hesperides." This species is unquestionably the parent of the several varieties under cultivation. There seems to have been but little improvement in this fruit in centuries. The great difference in the quality of this fruit, as seen in our markets, is largely due to cultivation. The common practice of planting the Quince in some neglected corner results in getting small, knotty fruit, almost if not altogether worthless. The Quince should have a deep, rich soil, rather heavy, and the ground should be kept clean and free from grass. Attention should also be paid to pruning, as a preventive against slugs and other vermin. The trunks and branches should be thoroughly rubbed over with strong soft-soap every spring. With this simple precaution the failure of a crop of large, clean, healthy fruit will be very rare. The propagation of the Quince is very simple, the more rapid way being to take cuttings from the young wood in autumn, heel them in in some protected place during winter, and plant out in spring in a shaded situation, and they will take root very readily. *C. Japonica* is a beautiful dwarf species, remarkable for the brilliancy of its blossoms, which vary from the richest scarlet to the most delicate blush color. It is a native of Japan, perfectly hardy, and well adapted for single plants on the lawn, or for planting ornamental hedges. The fruit has a delicious fragrance, but is entirely worthless for domestic purposes. This species is best propagated by root cuttings.

Cylista. From *kylistos*, twining; referring to the habit of the plants. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ*.

A genus of ornamental climbing plants. *C. scariosa*, found in the Bombay districts of India, is a very ornamental climber, requiring to be grown in a hot-house, as do most of the genus. The flowers are very showy, bright yellow, borne on erect bracted racemes, and are remarkable for their large papery calyx, which is very conspicuous. Propagated by cuttings. Introduced in 1776.

Cymbidium. From *kymbos*, a hollow recess; referring to a hollow recess in the lip or labellum. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ*.

A genus containing both terrestrial and epiphytal Orchids, many of them of rare beauty, and all worthy of cultivation. *C. Sinense*, a native of China, is remarkable for its delicious fragrance. The epiphytal species require the treatment of hot-house Orchids; the terrestrial ones do well in a green-house temperature.

Cynoglossum. Hound's Tongue. From *kyon*, a dog, and *glossa*, a tongue; referring to the shape of the leaves. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ*.

Pretty border plants, producing flowers of almost all colors. They grow in any soil, and are not very particular as to situation. They are increased readily by division of stools in the spring. The annuals and biennials are grown from seed.

Cypella. From *kypellon*, a goblet or cup; referring to the form of the flowers. *Linn. Monadelphia-Triandria.* Nat. Ord. *Iridaceæ*.

A genus of very pretty half-hardy bulbs, worthy of a place in the green-house. They are multiplied by offsets. Introduced in 1823.

Cyperus. Supposed to be derived from *Cypris*, a name of Venus, from their supposed medicinal qualities. *Linn. Triandria-Monogynia.* Nat. Ord. *Cyperaceæ*.

A genus of sedge plants, of but little merit for the garden or green-house. *C. alternifolius* is grown as a basket plant; it is of the easiest culture, and will thrive in any soil or situation, but prefers a moist one. A variegated variety of

this species is very beautiful, but not constant. They are natives of Madagascar, first introduced in 1781. *C. rotundus* (Nut Grass) is a common and troublesome weed in the Southern States.

Cyphia. From *kyphos*, curved; referring to the shape of the style and stigma. *Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

A small genus of herbaceous twiners from South Africa. They produce small blue or red bell-shaped flowers, of but little interest. The species are rarely met, excepting in botanical collections.

Cypress. See *Cupressus.*

Cypress Vine. See *Quamoclit.*

Cypripedium. Ladies' Slipper, or Moccasin Flower. From *Cypris*, one of Venus's names, and *podion*, a slipper. *Linn. Gynandria-Digynia.* Nat. Ord. *Orchidaceæ.*

A somewhat extensive genus of terrestrial Orchids, producing flowers of the most singular structure, combined with elegance and beauty. It is remarkable that a family with such marked and distinctive characteristics should find congenial homes in such a diversity of soil and climate. The species are pretty generally distributed, from our most northern States to Mexico, through South America, the Pacific Islands, and India. The State of New York furnishes six species, all beautiful and worthy of cultivation. The native species may all be cultivated in the garden by placing them in a shady border. The soil should be liberally mixed with leaf mould. Their unique blossoms render them highly deserving of any care. The best time for transplanting them from their native localities is when they are in bloom, and they should be removed with a ball of earth attached to the roots. Some of the tropical species require the temperature and humid atmosphere of the hot-house, while others do best in the green-house. The flowers are greatly valued in the winter months for florists' work. Propagated by division of roots, and by seed, but with some of the species it is a rather difficult matter.

Cyrtanthera. From *kyrtos*, curved, and *anthera*, an anther. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A small genus of handsome evergreen plants from South America, which do well in the green-house. They are nearly related to *Justicia;* their flowers are of orange, yellow, and rose colors, borne in dense terminal panicles. They are propagated readily from cuttings. Introduced in 1827.

Cyrtanthus. From *kyrtos*, curved, and *anthos*, a flower; the flowers bend down from the summit of the scape or stalk. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

Very handsome green-house bulbs from the Cape of Good Hope. The flowers, which are borne in umbels on a slender scape, are red, crimson, and orange, produced in summer, when they require very liberal watering; they

should be grown in pots. Propagated by offsets. Introduced in 1774.

Cyrtoceras. Has been united to *Centrostemma*, which see.

Cyrtochilus. From *kyrtos*, curved, or concave, and *cheilos*, a lip; the form of the labellum or lip. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A genus of small flowering Orchids from Mexico and Guatemala. The flowers are red, yellow, spotted, purple, and green. They require a high temperature, and are usually grown on blocks of wood or cork.

Cyrtodeira. From *kyrtos*, curved, and *deire*, neck. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

Green-house herbaceous perennials, with beautifully-colored foliage, and solitary flowers on short axillary stems. They make very pretty basket plants for the hot-house, the only place in which they thrive well. They do best in sandy loam and leaf mould. Increased readily from cuttings, and also from seed.

Cyrtomius. From *kyrtos*, curved; the shape of the spore cases or seed vessels. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of robust evergreen Ferns of very ornamental character. They are natives of India, China, and Japan, and require the hot-house for perfection of growth.

Cyrtopera. From *kyrtos*, curved, and *pera*, a small sack; alluding to the sack-like appendage to the labellum or lip. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of very beautiful terrestrial Orchids, natives of Northern India. In appearance they resemble the *Bletias*, and are usually given the same treatment.

Cyrtopodium. From *kyrtos*, curved, and *pous*, a foot; referring to the form of the labellum or lip. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A genus of beautiful, strong-growing Orchids from Brazil, valued alike for their large spikes of flowers, yellow spotted with red, and for their beautiful foliage. One species, with yellow flowers, has pseudo-bulbs nearly five feet high. The room required to grow them prevents their general cultivation.

Cystopteris. From *kystis*, a bladder, and *pteron*, a wing. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of interesting Ferns. See *Aspidium.*

Cytisus. From *Cythrus*, one of the Cyclades, where one of the species was first found. *Linn. Monadelphia-Hexagynia.* Nat. Ord. *Fabaceæ.*

This is an extensive genus, consisting principally of hardy deciduous trees and shrubs, of which the *Laburnum* is a well-known species. They are all very ornamental and free flowering. They succeed well in almost any soil or situation. They are readily increased by seeds or from cuttings. Introduced in 1596.

D.

Dacrydium. From *dakru*, a tear; referring to the gummy exudation. *Linn. Monœcia-Decagynia.* Nat. Ord. *Taxaceæ.*

A genus of evergreen trees inhabiting the East Indies and New Zealand. The flowers are curious, but not showy. The young branches afford a beverage of the same qualities as root-beer. *D. Franklinii*, from Tasmania, furnishes a valuable timber, very durable, which is used for ship and house-building. Some of the wood is beautifully marked, and is used for cabinet work.

Dæmonorops. From *dema*, a cord, and *rhops*, a twig; alluding to the rope-like, climbing stems. *Linn. Polygamia-Dicecia.* Nat. Ord. *Palmaceæ.*

This genus of Palms, numbering more than forty species, is closely allied to *Calamus*, to which most of the species formerly belonged. All the species are natives of the Eastern Hemisphere, principally of the Malayan peninsula and islands. They have long, thin, flexible stems, furnished with pinnate leaves, the prickly stalks of which are frequently prolonged into whip-like tails. *D. Draco* (formerly *Calamus Draco*) is a native of Sumatra and other islands of the Indian Archipelago, and is called the Dragon's Blood Palm, in consequence of its fruits yielding a portion of the substance known in commerce as Dragon's Blood. The fruits are about the size of cherries, and when ripe are covered with a reddish resinous substance, which is separated by shaking them in a coarse canvas bag. This resin is the best Dragon's Blood that is obtained, although there are several other plants that furnish a similar article. *D. Palembanicus* and a few other species, natives of Java, have lately been introduced into the green-house as decorative plants, for which purpose they are exceedingly appropriate. The young leaves are of a bright cinnamon brown, and the contrast between this warm color and the deep green of the matured leaves renders the plants very beautiful at the time they are in course of development. Young plants are obtained from seed. In a growing state they require considerable heat.

Daffodil. Narcissus, Pseudo-Narcissus. See *Narcissus.*

Dagger Plant and Bayonet Plant. Local names for a species of *Yucca.*

Dahlia. In honor of *Andrew Dahl*, a celebrated Swedish botanist and pupil of Linnæus. *Linn. Syngenesia-Superflua.* Nat. Ord. *Compositæ.*

This interesting genus, consisting of comparatively few species, shows more plainly the skill of the florist than almost any other in cultivation. Its history is also somewhat curious, as, strange to say, though it has become so great a favorite, and is so universally cultivated, the history of its introduction is very obscure. It is generally said to have been introduced into England by Lady Holland in 1804; but the fact is, it had been introduced many years before that period, and was only brought from Madrid in 1804 by Lady Holland, who apparently did not know that it was already in that country. The first kind of Dahlia known to Europeans, *D. superflua*, Cav., (*D. variabilis*, Dec., *Georgina pinnata*, W.,) was discovered in Mexico by Baron Humboldt in 1789, and sent by him to Professor Cavanilles of the Botanical Garden, Madrid, who gave the genus the name of Dahlia, in honor of the Swedish professor Dahl. Cavanilles sent a plant of it the same year to the Marchioness of Bute, who was very fond of flowers, and who kept it in the green-house. From this species nearly all the varieties known in the gardens have been raised, as it seeds freely, and varies very much when raised from seed. In 1802, *D. frustranea*, Ait., (*D. coccinea*, Cav.,) was introduced from France, in which country it had been raised from this kind, but they are much smaller than the others. It is rather remarkable that the two species did not hybridize together, and that *D. superflua*, or *variabilis*, should produce flowers of colors so different as crimson, purple, white, yellow, orange, and scarlet, without hybridization. Among all the colors, however, displayed by these varieties, no flowers have yet appeared of blue, and are not likely ever to be, as we find no family of plants in nature in which there are blue, yellow, and scarlet in varieties of the same species. These two species and their varieties were the only Dahlias known in English gardens for many years, as, though a few kinds were introduced from time to time from France and Spain, yet, as they did not hybridize with the others, and were rather more tender, they were not generally cultivated, and appear to have been soon lost. Most of these have, however, been reintroduced from Mexico, with several new species, within the last few years, and there are now ten or twelve distinct species, besides innumerable varieties of *D. variabilis.* The most remarkable of the new species is the tree Dahlia, *D. excelsa*, which is said to grow in Mexico thirty feet high, with a trunk thick in proportion. The propagation of the Dahlia is quite simple. For amateurs, division of the root will more than supply their needs, as each will divide, if started in a hot-bed or any warm and moist place, into at least six good plants. *D. imperialis*, a distinct species, attains a hight of ten to fifteen feet, and is of a fine branching form, producing, late in the fall, pure white, drooping, lily-like flowers, three inches in diameter. It flowers rather late to be seen in perfection in the Northern States, but it is a magnificent plant in any section of the country where frost holds off until the 15th of November. A new section, from *D. coccinea*, has just been introduced in England with single flowers, that make distinct and interesting bedding plants, as they flower in great profusion. The colors so far attained are scarlet, yellow, rose, and crimson, making a fine contrast with the yellow disk. For the trade it is propagated generally by cuttings taken off early in January, and grown on in pots, with few shiftings, until time to plant out in the border, which should be done as soon as danger from frost is over. To succeed well they should have a strong, deep, and rich soil; as they are rapid growers, they are consequently gross feeders. For perfection in bloom, the side branches should be kept cut, allowing but few at the top; this will give but few flowers, though of superior quality. The roots should be stored during winter in a dry, warm cellar, and covered with sand.

Daisy. See *Bellis.*

Dalbergia. Named after *Nicholas Dalberg*, a Swedish botanist. *Diadelphia-Decagynia.* Nat. Ord. *Fabaceæ.*

A genus of lofty growing, East Indian evergreen trees. Most of the species are truly magnificent. They are of immense size, with beautiful pinnate foliage, and produce an abundance of white flowers in axillary racemes. The trees are the most remarkable for the valuable timber they furnish. *D. latifolia* is the Blackwood or East Indian Rosewood tree, common on the Malabar and Coromandel coasts, and yields one of the most valuable furniture woods. The timber is furnished in planks four feet wide, and is of a dark purplish color, very heavy, close grained, and susceptible of a high polish. It lacks the rich perfume of the true Rosewood, and is not so beautifully variegated. In India it is used in the manufacture of their richest furniture. The species yield some of the most valuable timber used in the mechanic arts.

DAL

Dalechampia. Named after *James Dalechamp*, a celebrated French botanist. *Linn. Monœcia-Monogynia.* Nat. Ord. *Euphorbiaceæ.*

Evergreen climbers, producing small yellowish-green flowers on axillary peduncles. The genus is small, mostly natives of Brazil, and do best in the hot-house. Propagated by cuttings.

Dalibardo. Named after *Denis Dalibard*, a French botanist. *Linn. Icosandria-Digynia.* Nat. Ord. *Rosaceæ.*

D. repens, the only species, is a rather pretty trailing plant, quite common in our Northern woods. The flowers are white, singly or in pairs. It is not cultivated except in botanical collections.

Dammara. The name of the species in Amboyna. *Linn. Monœcia-Decagynia.* Nat. Ord. *Coniferæ.*

A genus of evergreen trees, similar to our Pines. *D. Australis*, a native of New Zealand, is a tree from 150 to 200 feet in height, producing a hard, brittle, resin-like copal, the principal ingredient of Dammar or white varnish.

Dampiera. Named after the circumnavigator, *Captain William Dampier. Linn. Pentandria-Monogynia.* Nat. Ord. *Goodeniaceæ.*

Green-house herbaceous perennials from New Holland, of easy culture. Flowers blue, both axillary and terminal. Propagated by cuttings of young shoots or by division.

Dandelion. See *Taraxacum.*

Daphne. From *daio*, to burn, and *phone*, a noise; it crackles when burning. *Linn. Octandria-Monogynia.* Nat. Ord. *Thymelaceæ.*

An extensive genus of small shrubs, mostly evergreen, with very beautiful fragrant flowers, natives chiefly of Europe, but partly also of the cooler parts of Asia, including Japan and China. Some of them are hardy shrubs, valued for their early spring flowers. *D. Cneorum* is a hardy trailing evergreen shrub, growing about a foot high, and producing its beautiful bright pink or crimson, deliciously sweet-scented flowers in terminal clusters in April and May, and occasionally again in September. On account of its dwarf habit it is especially suitable for planting on rock-work, or for edgings to beds. It is propagated by layers. *D. odora*, a native of China, is a green-house evergreen, succeeding best when planted out in a cool house. This and *D. Indica* are grown extensively for cut flowers, which are highly esteemed for their delicious fragrance. It grows freely from cuttings. Introduced in 1771.

Darea. Named after *Dar* a botanist. A genus of Ferns allied to *Asplenium*, which see.

Darlingtonia. Named in honor of *Dr. Darlington*, one of our most distinguished botanists. *Linn. Polyandria-Monogynia.* Nat. Ord. *Sarraceniaceæ.*

This remarkable genus consists of but one species, *D. Californica*, which is found in the marshy districts of California, and is commonly known as the California Side-Saddle Flower or Pitcher Plant. It is a perennial herb, and can be grown in an ordinary cool green-house. The plants should be potted in leaf-mould and sand. Propagated by division and from seed. Dr. Torrey gave the first description of this plant in 1853.

Darnel. A common name for the *Lolium.* A genus of noxious grasses introduced from Europe.

Darwinia. Named after *Dr. Darwin*, author of the *Botanic Garden. Linn. Decandria-Monogynia.* Nat. Ord. *Chamælauciaceæ.*

A small genus of low-growing, heath-like, evergreen shrubs, found in the extra-tropical regions of Australia. The leaves are marked with transparent dots. They are plants of but little interest to the florist.

DAV

Dasylirion. From *dasys*, thick, and *leirion*, a lily; the plants are succulent. *Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

A small genus of green-house evergreen plants from Mexico. The flowers, like most of this order, are quite interesting. They require similar treatment to the tender species of Yucca. They are increased by suckers. Introduced in 1830.

Date Palm. See *Phœnix.*

Date Plum. See *Diospyros.*

Datura. Jamestown Weed, Thorn Apple, Devil's Trumpet. An alteration of the Arabic name *tatorah. Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

Strong-growing, large-leaved plants, with doubtful propriety sometimes classed with ornamental plants, and allowed a place in the border. The flowers of some of the species are large and showy, but the plants themselves have a straggling, naked appearance that quite counteracts the beauty of the flower. *D. Stramonium*, commonly known as Thorn Apple, and in some sections as Jimson Weed, is a coarse-growing, troublesome weed, that seems to delight in filthy door-yards. The seeds and stems of the *Datura* are powerful narcotic poisons, and many deaths have resulted from eating the seeds. They are sparingly used in medicine, and the dried root is sometimes smoked as a remedy for asthma.

Daubentonia. Named after *M. Daubenton*, a celebrated naturalist. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Fabaceæ.*

A genus of green-house evergreen shrubs, chiefly remarkable for their curious, quadrangular seed pods, which are three to four inches long, stalked, pointed, and furnished with wings along the angles. Their red or yellow flowers, resembling the Laburnum, are borne on short axillary racemes. They are natives of Texas and Buenos Ayres. Propagated by cuttings of ripened young shoots. Introduced in 1820.

Daubenya. In honor of *Dr. Daubeny*, Professor of Botany in the University of Oxford. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus consisting of two species of yellow flowering bulbs from the Cape of Good Hope. They are very dwarf, the flower stalk being from three to six inches high, upon which is borne an umbel of small showy flowers. They are of easy culture, in a dry, warm situation, and with slight protection they will endure our winters. The safer way is to treat them the same as Gladiolus. Propagated by offsets.

Daucus. Carrot. From *daio*, to make hot; in allusion to its supposed effect in medicine. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

For description of this genus, see *Carrot.*

Davallia. Hare's-foot Fern. Named after *Edmund Davall*, a Swiss botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A fine and extensive genus of tropical Ferns. They have scaly, creeping rhizomes, which are covered with close brown hair, which feature has given rise to the name of Hare's-foot Fern. The genus is well marked by natural features, and is one of the most elegant to be found in our green-houses. Propagated by division of roots and by spores. Introduced in 1699.

Daviesia. Named after the *Rev. Hugh Davies*, a Welsh botanist. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

Handsome green-house evergreens from New Holland. Like all other plants from that country, they require a bountiful supply of air on all favorable occasions through the winter, and in summer they are much better placed in the open air, so that they are slightly shaded from the mid-day sun. Some of the species have a subscandent habit, which, with their densely-filled, drooping spikes of yellow and red flowers, gives them a very graceful appearance. Propagated by cuttings from well-ripened side shoots. Introduced in 1792.

Day Flower. See *Commelyna*.

Day Lily. See *Funkia*.

Dead Nettle. A common name for the genus *Lamium*, worthless weeds, a few species of which have become naturalized in this country to such an extent as to be troublesome. Natives of Europe.

Decumaria. From *decuma*, a tenth; referring to the ten valvate divisions of the calyx, and the ten cells of the capsule or seed-pod. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Philadelphaceæ.*

A climbing shrub of the Southern States. Allied to *Philadelphus*. The flowers are white, sweet-scented, and arranged in corymbs. They are well adapted for growing against walls, thriving in almost any soil or situation. Propagated by cuttings or from seed.

Deerberry. One of the popular names of *Vaccinium stamineum.*

Deer-Grass. See *Rhexia.*

Delphinium. Larkspur. From *delphin*, a dolphin; in reference to the supposed resemblance in the nectary of the plant to the imaginary figures of the dolphin. *Linn. Polyandria-Trigynia.* Nat. Ord. *Ranunculaceæ.*

Well-known annual, biennial, and perennial plants, with curiously-cut leaves and splendid flowers, which are either scarlet, purple, pink, blue, or white, and never yellow. The Siberian Larkspurs are remarkable for the metallic luster of their flowers, the hue of which resembles that of silver which has been tarnished by fire; and the Bee Larkspurs are remarkablo and interesting for the curious manner in which the petals are folded up in the center of the flower, so as to resemble a bee, or a large blue-bottle fly. The Larkspurs will grow in any soil or situation, but one open to the sun suits them best. They are improved by the addition of a good deal of thoroughly-rotted manure to the soil in which they grow. The seeds keep good a long time, and those of the annual kinds do best sown in autumn, as when sown in spring they are a long time before they flower. The perennials are propagated by division of the root, or by seed, which if sown in March in the green-house or hot-bed, and the plants pricked out as soon as they show their second pair of leaves, and carefully grown on until the first of June, and then turned out into the flower-garden, they will flower finely during the autumn months.

Dendrobium. From *dendron*, a tree, and *bios*, life; referring to the way these air-plants fasten on trees for support. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

In this extensive genus we are presented with some truly magnificent epiphytes, which, regarded either for their singular manner of growing, graceful or grotesque habits, and large, handsome, and richly-scented flowers, are perhaps unsurpassed in the entire range of vegetable forms. In a cultural sense they may be divided into two sections, the pseudo-bulbous class, and those with tall bulbous stems. Many of the former are extremely small compared with the splendid flowers they produce, and, from this circumstance, are usually grown on blocks of wood or cork, lest the young shoots should receive injury from excessive moisture. Those belonging to the other section are again divisible. The upright growing species, such as *D. nobile*, make the best appearance when cultivated in pots, and trained into suitable forms by the aid of stakes; those of pendent trailing habits should be grown in baskets suspended from the roof of the house; in either case the soil should be composed of about one-half fibrous loam, and the other portion made up of sphagnum and rotten wood. This mixture should be thoroughly incorporated without breaking it fine, and an efficient drainage must be secured, or the plants will not thrive. The base of their stems should be elevated two, three, or four inches, according to the size of the plant, above the top of the pot or basket, as they are liable to much injury from damp when protruding their new shoots. The temperature of the house in which these plants are grown is a consideration of the first consequence to their successful culture; it requires to be assimilated, as nearly as circumstances will allow, to that of their native positions, and may be described as of three distinct phases, a dry and warm season, in which the plants produce their flowers, to be succeeded by one still warmer, and in which an abundance of moisture must be present, as it is at this time that new growths are effected, and this active season must be followed by one suited to produce a state of repose in the plants, by reducing the amount of heat considerably, and restricting the supply of moisture to the least possible quantity. This season is that which corresponds with our winters, and for convenience should be referred to that time. Thus, from December to about the end of March, or later for some species, may be regarded as the period first mentioned, the growing season commencing with each individual as soon as its flowering is over, and continuing until the growth is complete, which is usually about the end of August or some part of September, when they require the perfect rest already spoken of. It is in the variation of these seasons, the withholding or appliance of heat, that the whole art of the management lies. If it is done correctly, and at the proper time, of course the plant progresses satisfactorily, but otherwise all is confusion; the plant continues growing, but does not flower, becoming weaker each season. An average of 55°, with but slight alteration, should be observed for the dormant season; increasing it gradually to 65° or 70° for the flowering period, and after this is past, the temperature may be allowed to run up to 85°, 90°, or even more through the summer, keeping a proportionate amount of moisture in the atmosphere of the house by means of frequent steaming, syringing, etc. The genus consists of over 200 species, of which upward of eighty have been introduced into the green-house, and some of the species are grown to an extent that warrants their use as a cut-flower. Their appearance in the florists' windows is by no means rare, the more common being *D. nobile*, which flowers freely in the green-house during the winter, and is one of the very few Orchids that will grow and flower very well in the ordinary sitting-

room. They are natives of India, Australia, and the Pacific Islands.

Dendrochilum. From *dendron*, a tree, and *cheilos*, a lip. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of East Indian Orchids, chiefly of little interest. One or two of the species are highly esteemed by those who make a specialty of Orchids. *D. glumaceum* is a very handsome species, of neat habit, and produces graceful drooping spikes of ivory-white flowers; the leaves, resembling those of the Lily of the Valley, gives the plant a beautiful appearance when out of flower. *D. filiforme* is another graceful little plant, with yellow flowers. This genus requires to be grown in great heat, and the plants, when at rest, should have an occasional watering, as the pseudo-bulbs are quite small, and, if allowed to shrivel, the plants would be lost. They are increased by division. Introduced in 1836.

Dennstædia. Derivation of name not given. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of Ferns known here as *Dicksonia*, which see. The name is also a synonym of *Sitolobium.*

Dentaria. Toothwort. Pepper-root. From *dens*, a tooth; referring to the fanged roots. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

A genus of hardy herbaceous perennials, several of the species being common in most of the States. The roots of *D. diphylla* have a pungent, mustard-like taste, and are considerably used as a salad, under the name of Pepper-root. The plant is somewhat ornamental, of a dwarf habit, producing short racemes of white or purplish flowers. They are increased readily by division.

Desfontainia. In honor of *M. Desfontaines*, the French botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

The few species that compose this genus are very handsome green-house evergreen shrubs, found in Peru. They have thick leaves with spiny margins, like those of the Holly. This is one of the plants that perplexes the botanist, as there is nothing in its external appearance that would lead to a knowledge of its affinities. It has been placed under three different classifications previous to the present one. *D. spinosa*, the only described species, has large flowers borne on terminal peduncles, scarlet, with a yellow limb. The elegance of its foliage and the brilliancy of its flowers make it a very desirable green-house plant. It requires about the same treatment as the Fuchsia. Introduced in 1850.

Desmodium. Moving Plant, Tick-Trefoil. From *desmos*, a band; alluding to the stamens being joined. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Leguminosæ.*

An extensive genus of hardy herbaceous perennials and green-house evergreen shrubs. Most of the species are uninteresting plants, but a few are very beautiful and remarkably interesting. There are numerous species throughout the United States, with purple flowers, produced in slender racemes. Some are herbs, others shrubs, but none of the native species are worthy of cultivation. The most interesting of the species, if not the most beautiful, is *D. gyrans*, the Moving Plant, a native of India, but rarely seen under cultivation. The singular, spontaneous rotary motion of the leaflets of this plant renders it an object of great interest. The leaves are composed of three leaflets, the terminal one

being very large, and the laterals very small, but these are almost constantly in motion. They execute little jerks somewhat analogous to the movements of the seconds of a watch. One of the leaflets arises and the other descends at the same time, and with a corresponding force. When the first begins to descend the other begins to rise. The large leaflet moves also, inclining itself first to the right, then to the left, but by a continuous and very slow movement when compared with that of the lateral leaflets. This singular mechanism endures throughout the life of the plant. It exercises itself day and night, through drought and humidity. The warmer and more humid the day, the more lively are its movements. It is not unusual for the leaflet to make sixty jerks in the minute; they will not do this, however, under artificial cultivation, except when the plant is subjected to great heat. These movements occur spontaneously and without any apparent cause. The same external cause that has such a wonderful effect on the Catch-fly and the Sensitive Plant, does not effect this in the least. None of our native species has this strong peculiarity. *D. penduliflorum*, a native of Japan, introduced into the United States in 1865, is one of our best hardy herbaceous plants. Its height is five to six feet, and the color bright rosy carmine. Propagated by seeds or cuttings.

Deutzia. Named after *J. Deutz*, a sheriff of Amsterdam. *Linn. Decandria-Trigynia.* Nat. Ord. *Philadelphaceæ.*

A genus of slender branched, graceful shrubs, producing compound panicles of beautiful white flowers. *D. scabra*, one of the more common species, takes its specific name from the roughness of its leaves, which in its native country, Japan, are used by the cabinet makers in polishing the finer kinds of wood. *D. gracilis* is grown extensively for forcing into flower in winter and early spring, for the cut flower trade. All the species are perfectly hardy. They are readily propagated by cuttings, divisions, or layers.

Devil in a Bush. See *Nigella.*

Devil's Bit. A vulgar name for *Chamælirium.*

Devil's Trumpet. A popular name for *Datura.*

Dew-Berry. See *Rubus.*

Dianella. A diminutive of *Diana*, the sylvan goddess; the first discovered species being found in a grove. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Lovely tuberous-rooted plants, chiefly from New Holland. They should be grown in pots of loam and peat, and if allowed a good situation in the green-house, will produce their showy blue flowers in abundance. Propagated by division or from seed.

Dianthus. From *dios*, divine, and *anthos*, a flower; in reference to the fragrance and the unrivaled neatness of the flowers. *Linn. Decandria-Digynia.* Nat. Ord. *Caryophyllaceæ.*

Most of the species of this genus are highly valued for the beauty and fragrance of the flowers, which present a richer variety of tints of scarlet, crimson, rose, orange, etc., than is to be found, perhaps, in any other genus. The fragrance of some of them is peculiarly grateful, and no plant in this respect surpasses the Carnation *D. caryophyllus*, (Clove Pink and Carnation.) Seedlings stand the winter and spring without difficulty, with a light covering of leaves and evergreen boughs, and flower very well. Very many will not be considered worth saving by

the florist, although they will all be interesting as single, semi-double, or irregular flowers, and richly repay all the labor. Carnations are arranged by florists into three classes, viz., Flakes, Bizarres, and Picotees. Flakes have two colors only; their stripes are large, going quite through the petals. Bizarres are variegated in irregular spots and stripes, with not less than three colors. Picotees have a white ground, spotted at the edges with scarlet, red, purple, or other colors. The Clove Pink is rather more hardy than the Carnation, of which it is the parent; the petals are more fringed, and the fragrance more powerful, resembling that of the clove. In France it is called the Clove Gilly-flower. Some suppose this latter name to have been corrupted from July-flower, July being its flowering time. The great improvement in the Perpetual Carnation (Tree or Winter-flowering Carnation) has added an invaluable feature to the section of winter-blooming plants, for the sitting-room, conservatory, or green-house. The delicately rich and grateful odor, in connection with the brilliant color and good outline of the flowers now offered, secures for them a prominent place in the forcing department for cut flowers. *D. hortensis*, (Garden Pink, Florist's Pink, or Paisley Pink.) This species is in perfection about the last of June. The foliage is more grass-like and the plant much hardier than the Carnation. The double varieties are very desirable, and all have clove fragrance. *D. Chinensis*, (China Pink.) This species is a biennial of dwarf habit, of great beauty, but without fragrance. The foliage is of a yellowish green. It flowers from seed the first year, being perfectly hardy. It flowers stronger the second year. The colors are exceedingly varied and rich: crimson, and dark shades of that color approaching to black, are often combined in the same flower with edgings of white, pink, or other colors. Seed saved from double flowers will produce a great proportion of double flowers. In beds where there may be a hundred plants, scarcely two will be found alike. *D. barbatus* (Sweet William) is an old inhabitant of the flower-garden, and was much esteemed in Gerarde's time "for its beauty to deck up the bosoms of the beautiful, and garlands and crowns for pleasure." Fine varieties are perpetuated by dividing the roots. It is easily raised from seeds. A bed of fine sorts presents a rich sight. It sports into endless varieties, viz.: white, pink, purple, crimson, scarlet, and variously edged, eyed, and spotted. The whole family of Dianthus are readily increased by seeds or cuttings.

Diapensia. Named by Linnæus from *diapente*, composed of five; alluding to the flowers being five-cleft. *Linn. Pentandria-Monogynia.* Nat. Ord. *Diapensiaceæ.*

This genus consists of two beautiful little Alpine plants, both evergreen, which grow in dense tufts, scarcely rising more than an inch above the ground. The flowers are white, bell-shaped, and about half an inch across. It was first discovered in Lapland, but has since been found in the White Mountains, in New Hampshire, and in the Adirondacks in New York. In its native country it is continually covered with snow in winter, which is the best protection against severe dry frosts. It can be grown in small pots, and protected by a frame in winter. Propagated by seeds or division.

Dicentra. See *Dielytra.*

Dichorizandra. From *dios*, twice, *chorizo*, to part, and *aner*, an anther; referring to the anthers being two-cleft. *Linn. Hexandria-Monogynia.* Nat. Ord. *Commelynaceæ.*

A genus of hot-house, herbaceous perennials from Brazil, some of the species being exceedingly ornamental and invaluable for late autumn or winter flowering. *D. thyrsiflora* ranks highest, and when well grown will reach ten feet in height, branched all round, each branch terminating with a long spike of sky-blue flowers. When the flowers begin to expand it may be removed to a warm conservatory, where it will last in bloom for several weeks. Propagated by division in spring, when the new growth commences, or from seed, which should be sown in a hot-bed or green-house as early as possible in spring. Introduced in 1810.

Dicksonia. Named after *James Dickson*, a famous British cryptogamic botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of very ornamental Ferns, mostly arborescent, and including some of the most valued Tree Ferns to be found in our greenhouses. *D. antartica*, a native of Australia, introduced in 1824, is the one most commonly met, and the most ornamental of the genus. *D. arborescens*, a native of St. Helena, grows about twelve feet high, bearing at its summit a number of pinnated fronds, from ten to twelve feet in length. This species grows in great abundance at St. Helena, and, next to the tomb of Napoleon, is the great attraction of the island. It is remarkable that this species has not been found in any other part of the world. All the Tree Ferns should be grown in a mixture of loam and leaf mould, and require a humid atmosphere. They increase rapidly by division or from seed. One species, *D. punctilobula*, a hardy herbaceous plant, is a native of this country, very common in moist, rather shady places. It is one of our handsomest Ferns, and has an agreeable odor.

Dicliptera. From *dis*, twice, and *kleio*, to shut; referring to the two-celled capsule or seed vessel. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

An extensive genus of annuals and perennials, allied to *Justicia.* The species are dispersed over the tropical and sub-tropical regions of the New and Old World. The annuals grow readily from seed, which should be started in a hot-bed, or the green-house in March, grown on until all danger from frost is past, and then transplanted in the open border. The perennials are increased by cuttings. They all require a very light, rich, fibrous soil.

Dictamnus. Fraxinella, Gas Plant. An ancient name, supposed to have been given because the leaves resemble those of the Ash; hence the English name, Fraxinella. *Linn. Decandria-Monogynia.* Nat. Ord. *Rutaceæ.*

A small genus of hardy herbaceous perennials, and among the oldest inhabitants of the cottage garden. Johnson says: "Instances are known where *D. Fraxinella* has outlived father, son, and grandson in the same spot, without increase. All attempts at multiplying it, to give away a rooted slip to a newly-married member of the family, having failed, yet the Fraxinella is easily increased from seeds, which should be sown soon as ripe in any common garden soil. They will come up the following spring." The plant has to be three years old before it will flower. It is a native of Germany. When

rubbed the leaves emit a fine odor, like that of lemon peel; it is strongest in the pedicels of the flowers. The flowers, on opening, emit a gas which may be readily ignited.

Dictyanthus. From *diktyon*, net work, and *anthos*, a flower; the flowers are netted with veins. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

Green-house climbers of considerable beauty, from Central America and Brazil. They will do well planted out in summer, but require green-house culture during winter. The same treatment that is given the Passiflora will suit them. The flowers are whitish purple and greenish brown, borne on axillary peduncles. *D. campanulatus* somewhat resembles the Stapelia. Propagated by cuttings. Introduced in 1851.

Dictyogramma. A genus of Ferns formerly called *Gymnogramma. D. Japonica* is described as *Gymnogramma Japonica.* There does not seem to be any good reason for this change in name.

Dictyopteris. From *diktyon*, a net, and *pteris*, a Fern; referring to the fronds. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of Ferns from Australia, without special merit, and rarely met in collections.

Didiscus. Derivation of name not given. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apiaceæ.* The two species that compose this genus were formerly included in *Trachymene. D. cæruleus* is a showy plant, a native of Australia. It is covered with hairs; its leaves are three-parted, each division again sub-divided; its flowers are blue. The fruit, when mature, is covered with small tubercles. *D. albiflorus* has no hairs, and its flowers are white.

Didymochlæna. From *didymos*, twin, and *chlaina*, a cloak; referring to the covering of the spore cases, called seed vessels. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of very handsome Tree Ferns, natives of Africa and South America. They are allied to *Oxygonium.* The species are rarely met in collections.

Dieffenbachia. Named after *Dr. Dieffenbach*, a German botanist. *Linn. Monœcia-Heptagynia.* Nat. Ord. *Araceæ.*

A genus of showy plants, all inhabitants of tropical America and the West Indies. They are grown for the beauty of their foliage, which is a very light green, thickly dotted with irregularly-shaped, pure white blotches, which give the plant a decidedly variegated appearance. They require a warm house, and should be kept near the glass to bring out their full colors. When at rest, if water is thrown over them, they are liable to damp off. The juice of these plants is decidedly poisonous; for this reason, and their awkward appearance when at rest, they have lost much of the favor that was bestowed upon them at their early introduction. *D. seguina picta* (also called *Caladium seguinum*) is called the "dumb cane" by the natives, because it has the power, when chewed, of swelling the tongue and paralyzing the speech. It is said that Humboldt, when gathering the plant, unfortunately tasted it, and, in consequence, lost his speech for several days. Similar instances are related of others. Propagated by division and by cuttings. They should be grown in a light, rich loam, freely mixed with sand and leaf mould.

Dielytra. From *dis*, two, and *elytron*, a sheath; the base of the flower being furnished with two sheath-like spurs. There has been a good deal of learned discussion among botanists as to the

true derivation of this word. Gray favors *Dicentra. Linn. Diadelphia-Digynia.* Nat. Ord. *Fumariaceæ.*

A genus of very desirable hardy herbaceous plants, that grace any position in which they may be placed. *D. spectabilis*, the "*Bleeding Heart*," a native of Siberia, was found by Mr. Fortune in the gardens in the north of China, and sent it, in 1846, to the London Horticultural Society. This species is too well known to need description. It is only proper, however, to say it is by far the handsomest of its tribe, and will grow in thick groves or in the most sunny situations. In the shade they do not flower so freely as in sunny places, but last longer, and more than compensate the loss of flowers by their luxuriant, graceful foliage. This species is well adapted for pot culture. It should be potted in November, left outside until it has formed new roots, and then brought into a gentle heat, and it will come into flower early in March. Taking it all in all, it is probably the finest hardy plant in cultivation. The plants are increased by division of roots, which should be done as soon as they start in spring.

Diervilla. Named after *M. Dierville*, a French surgeon. *Linn. Pentandria-Monogynia.* Nat. Ord. *Caprifoliaceæ.*

A small genus of low-growing shrubs, with yellow flowers, appearing in spring, by no means as showy as the allied Japanese genus *Weigela.* They are common from Canada southward.

Digitalis. Fox-glove. From the Latin *digitale*, the finger of a glove; referring to the shape of the flower. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

This genus consists of several species, biennials and perennials, all perfectly hardy and of the easiest culture. *D. purpurea*, the common Fox-glove, has long been cultivated as an ornamental border plant, and is the most useful of the class. There are some with white, rose, and yellow flowers that are very beautiful, but not so free flowering. They prefer a rich, loamy soil, and partial shade. Natives of Central Europe. Propagated by seeds or root division. There are several green-house shrubs that were formerly classed as *Digitalis*, that will now be found under *Isophlexis, Rehmannia*, and *Pterostigma.* A popular English name of the *Digitalis purpurea* is Witches' Fingers. The plant is used in medicine.

Dill. *Anethum graveolens.* Dill is a hardy biennial plant, a native of Spain, and has been under cultivation in English gardens for nearly three hundred years. The plant grows upright, and resembles Fennel, only it is smaller. The flowers are borne in an umbel, and appear in July. The whole plant is strongly aromatic. The leaves are used in pickles, and to give flavor to soups and sauces. It was formerly included in domestic medicines. It is readily grown from seed in any good garden soil.

Dillwynia. In honor of *L. W. Dillwyn*, a British patron of botany. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

Handsome green-house plants, of neat habit of growth, free to flower, and of easy cultivation. An airy part of the green-house should be allotted to them in winter, and through the summer they will be benefited by being placed out of doors. It is essential, in order to produce handsome plants, that the young shoots be frequently stopped while the plants are young, or

they are liable to overgrow themselves. Propagated by cuttings of firm side shoots in March or April. Natives of New Holland. Introduced in 1794.

Dimorphanthus. From *dimorphus*, two formed. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Araliaceæ.*

This genus is composed of herbs and shrubs, natives of China and Japan. Some of the species are very ornamental plants for the green-house or garden. *D. Mandchuricus* is a deciduous shrub, said to be perfectly hardy. Its handsome multifid leaves are nearly three feet long, and of the same width, which gives the plant a magnificent outline. The young shoots of *D. edulis* are a delicate article of food, much prized by the Chinese. They are increased by seeds and from cuttings.

Dion. From *dis*, two, and *oon*, an egg; referring to the two-lobed scales which compose the large cones of the cycad, bearing a large nut-like seed at the bottom of each scale; otherwise from seeds being borne in twos. *Linn. Diœcia-Dodecagynia.* Nat. Ord. *Cycadaceæ.*

D. edule, the only species, is a beautiful Palm-like plant. Its simple Zamia-like stem is completely covered with wool, and bears deep green pinnate leaves, whose leaflets are sword-shaped and sharp pointed. The cone consists of flat scales covered with wool, each scale bearing two large seeds of the size of Chestnuts, that yield a large quantity of starch, which is used as arrow-root. *D. edule* is extensively cultivated as an ornamental green-house plant here. Propagated by suckers and seeds. It is a native of Mexico, and was introduced in 1844.

Dionæa. Venus's Fly-trap. *Dione*, one of the names of Venus. *Linn. Decandria-Monogynia.* Nat. Ord. *Droceraceæ.*

D. muscipula, the only species, is indigenous to the swamps of North Carolina and other Southern States. Aside from all the fables about this plant, it is one of extreme interest to cultivators, owing to the irritability displayed by the stipulary fringes on the winged leaves. The lamina of the leaf itself is divided by the midrib into two nearly semicircular halves, each of which is fringed with stiff hairs. This leaf exactly resembles a miniature rat-trap. When the hairs are touched by a fly or other insect, the sides of the leaf are brought together with a sudden spring, imprisoning the intruder. Mr. Charles Darwin and other writers claim that the *Dionæa* not only catches and kills the insects, but that its tissues absorb or feed upon them. Our experiments, carefully and extensively made during the summer of 1878, were such as to cause strong doubts of the correctness of this theory. The *Dionæa* is easily grown in sphagnum moss, kept very moist when the plants are in a growing state. They do rather the best when grown in a Wardian case or under a bell glass, and are always interesting from their singular insect catching peculiarity.

Dioscorea. Yam. After *Pedacius Dioscorides*, a Greek physician. *Linn. Diœcia-Hexagynia.* Nat. Ord. *Dioscoreaceæ.*

A genus of tuberous-rooted plants that are extensively grown in Africa and the East and West Indies for food. The roots grow to a great size, are mealy, and considered to be easy of digestion. They are roasted and eaten instead of bread. The introduction of the *Dioscorea batatas* into this country as an article of food some years ago created quite a sensation; although we did not get a very valuable esculent, we got a beautiful hardy climber, with clean, glossy foliage and sweet-scented flowers, that are produced in spikes at the base of the leaves. This species was introduced from the West Indies in 1733. *D. villosa*, Wild Yam, is quite common in the thickets of New England and to the South and West.

Diosma. From *dios*, divine, and *osme*, odor; referring to the powerful perfume which characterizes the species. *Linn. Pentandria-Monogynia.* Nat. Ord. *Rutaceæ.*

There is quite a large number of the species, all from the Cape of Good Hope. First introduced in 1731.

Diospyros. Date Plum, Persimmon. From *dios*, divine, and *pyros*, pear; literally celestial food. *Linn. Polygamia-Digynia.* Nat. Ord. *Ebenaceæ.*

D. Virginiana is the Persimmon of our woods, common from New York southward. Ebony wood is obtained from several species of this genus. The best and most costly kind, with the blackest and finest grain, is that imported from the Mauritius, which is yielded by *D. reticulata*. It is only the heart of the tree that yields the black ebony; the outer portion, or sapwood, being white and soft. The Japanese Persimmon is the best fruit in Japan. Their horticulturists have, by selection and cross-fertilization, developed this fruit until it occupies the same position with them that the Apple does with us. It is described as one of the finest fruits in the world, and ranges in weight from eight to twenty ounces. Prof. Asa Gray says: "He who has not tasted Kaki (the Japanese Persimmon) has no conception of the capabilities of the Diospyros genus." The trees are ornamental, especially when in fruit, prolific bearers, and free from worms and insects. It has proved about as hardy as our native species.

Diplacus. From *dis*, two, and *plakos*, a placenta; alluding to the splitting of the capsule, to each valve of which is attached a large placenta, and under its edges are found the slender subulate seeds. *Linn. Didynamia-Digynia.* Nat. Ord *Scrophulariaceæ.*

This genus, consisting of three or four species, is closely allied to *Mimulus*, the principal difference being in its shrubby habit and the seed capsule. *D. glutinosus*, a native of California, was long cultivated under the name of *Mimulus glutinosus*. It is an erect, branching plant, becoming more or less branching at the base. The flowers are rather large, solitary in the upper axils, and vary from a pale yellow to a rich orange or scarlet. All the varieties are desirable plants for the green-house or shady border. Propagated by cuttings.

Dipladenia. From *diploos*, double, and *aden*, a gland; referring to the presence of two gland-like processes on the ovary. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

A genus of very beautiful climbing green and hot-house shrubs from Central America and Brazil. The flowers are red, purple, rose, yellow, etc., and are produced in terminal clusters in great abundance, and some few kinds flower when quite small. Most of them require to be grown in rather a high temperature. Propagated by cuttings. Introduced in 1841.

Diplazium. From *diplazo*, to double; referring to the double covering of the spore cases or seed vessels. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

DIP

An extensive genus of handsome evergreen Ferns, closely allied to Asplenium, and requiring the same general treatment. The species are pretty generally distributed from North America to Brazil.

Dipsacus. Teasle. From *dipsao*, to thirst; referring to the cavity formed by the leaves clasping the stem holding water. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Dipsacaceæ.*

Hardy biennials, of but little beauty or use, except *D. fullonum*, the Fuller's Teasle, which is a leading farm crop in the town of Skaneateles, N. Y., the conditions there being so favorable for its growth that it produces nearly all that are used in the United States. The flower heads, when dried, are used in the manufacture of woolen cloths, and are an article of considerable importance. Natives of Great Britain.

Dipterix. Tonquin Bean. From *dis*, double, and *pteriz*, a wing, referring to the two upper segments of the calyx. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Fabaceæ.*

D. odorata, the only species, is an ornamental evergreen tree, a native of Cayenne. It produces the Tonquin or Tonga Bean of commerce, so much used by perfumers, and in the adulteration of the extract of Vanilla.

Dirca. Leather-wood, Moose-wood. From *dirke*, a fountain; the plant growing in moist places. *Linn. Octandria-Monogynia.* Nat. Ord. *Thymelaceæ.*

D. palustris, the only species, is a much-branched shrub growing about six feet high. The flowers are small and yellow, and produced in clusters. They are followed by small reddish, poisonous fruit. The fibrous bark of this shrub is remarkably tough, and was used by the Indians for thongs, whence the popular names. It is common in moist ground from Pennsylvania and Kentucky northward. In some of the New England States it is called Wicopy.

Disa. Meaning unknown, but supposed to be its native name. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

An extensive genus of terrestrial Orchids confined to South Africa and Abyssinia. There is a wide variation in the habit of the various species. *D. grandiflora* is perhaps the most beautiful of all terrestrial Orchids. It is spoken of as the pride of Table Mountain, where it grows in great profusion on the borders of streams and water pools, which are dry in summer, producing its gorgeous flowers in February and March. The flowers are large, the sepals of a deep scarlet crimson; petals tipped with white and green, pale yellow inside. The species have been considered the most difficult to manage of any in cultivation. Mr. Rand differs with most growers upon this point, having been quite successful in flowering them, with the following treatment: "The soil for this plant should be rich fibrous peat and loam. It should have but little heat, and never be allowed to dry off. The great trouble in its culture appears to be want of water. If there is good drainage it can scarcely have too much. It does not need much heat, and should be grown with a good circulation of air, and not full sun." Propagated by division. Introduced in 1805.

Dischidia. From *dis*, twice, and *schizo*, to split; referring to an obscure process in the construction of the flower. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.* Nearly related to Stephanotis and Hoya.

A small genus of ornamental green-house evergreen trailers. Flowers are white, borne at the axils of the leaves. A plant of but little merit.

DOD

Disemma. From *dis*, double, and *stemma*, a crown; referring to the double coronet or rays. *Linn. Monadelphia-Digynia.* Nat. Ord. *Passifloraceæ.*

This genus is closely allied to Passiflora, requires the same general treatment, and is propagated in the same manner. Some of the species are very beautiful, and worthy of cultivation. They are natives of New Holland. Introduced in 1792.

Disocactus. Dish-rag Plant. See *Luffa.* From *dis*, twice, *isos*, equal, and *cactos;* the divisions of the petals and sepals equal, and twice two, and the habit of a Cactus. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

There is but one known species of this genus, which is a weak trailing shrub or bush, a connecting link between two sections of the order, the *Epiphyllum* and *Rhipsalis.* The flowers are produced singly from one of the notches at the upper end of the young branches, and are characterized by having only four sepals and four petals. They are of a deep pink color, about two inches long, produced in succession, last a long time, and are succeeded by beautiful little shiny, deep crimson berries. The plant should be grown in soil composed of equal parts of sharp sand, leaf mould, and turfy loam. In a growing state it should have a moist atmosphere, but in winter it should be kept dry, with plenty of light. It may be increased by cuttings or seeds. It is a native of Honduras, and was introduced in 1839.

Disperis. From *dis*, double, and *pera*, a pouch; in allusion to the form of the outer segments of the perianth. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of terrestrial Orchids from the Cape of Good Hope, bearing scarlet or purple flowers. It requires the same treatment in propagation and culture as *Disa.*

Disporum. From *dis*, double, and *poros*, a pore; application not stated. *Linn. Hexandria-Monogynia.* Nat. Ord. *Melanthaceæ.*

A genus of half-hardy herbaceous plants, allied to *Uvularia.* The flowers are small, but rather pretty, of brown or yellow colors. They succeed well in a warm border, if slightly protected in winter. Natives of China and Nepal. Introduced in 1801. Propagated by division of roots.

Ditch Stone Crop. The common name of *Penthorum sedoides.*

Dittany. See *Cunila.*

Dock. See *Rumex.*

Dodder. See *Cuscuta.*

Dodecatheon. American Cowslip. From *dodeka*, twelve, and *theos*, a divinity; twelve gods or divinities of the Romans; a name absurdly applied to a plant, native of a world the Romans did not know, and resembling in no particular any plant of their writers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Primulaceæ.*

This is a genus of native herbaceous perennials that deserve extensive cultivation. They are common in rich woods in Pennsylvania and westward to Wisconsin. In the West the common name is Shooting Star. They are exceedingly handsome in cultivation, thriving well in a shady border. The flower-stems are one foot or more high, bearing a considerable number of elegant drooping flowers of rosy purple, light

purple, or white colors, and of an interesting shape, somewhat resembling the Cyclamen, to which plant it is allied. They are propagated by seeds or division of the roots.

Dog's Tail Grass. One of the popular names of the *Ecusine Indica*.

Dog's Tooth Violet. See *Erythronium*.

Dogwood. See *Cornus*.

Dolichos. From *dolichos*, long; referring to the long, twining shoots. *Linn. Diadelphia-Tetragynia*. Nat. Ord. *Fabaceæ*.

Climbing annual and perennial plants from the East and West Indies, generally with purple or white flowers. The pods and seeds are eatable, and, in some cases, also the roots. *D. Lablab*, the Egyptian Bean, is a beautiful species with two varieties, one with dark purple flowers, the other white. They grow in any situation, where an ornamental climber is required, and may be treated as hardy annuals. This species was introduced from Egypt in 1818.

Dondia. A synonym of *Hacquetia*, which see.

Doodia. Named after *Samuel Doody*, a London apothecary and cryptogamic botanist. *Linn. Cryptogamia-Filices*. Nat. Ord. *Polypodiaceæ*.

A genus of green-house herbaceous Ferns, with the exception of *D. Virginica*, which will grow in any moist situation, with partial shade, being perfectly hardy. The species are small, stiff, and rough-leaved, without great beauty. The tender species are from Australia. Propagated by division when at rest.

Doora. See *Sorghum vulgare*.

Dorema. From *dorema*, a gift or benefit. *Linn. Pentandria-Digynia*. Nat. Ord. *Apiaceæ*.

A hardy herbaceous plant, growing on the plains in the province of Irak, Persia. It furnishes the drug known as Ammoniacum. The plant abounds in a milky juice, which exudes upon the slightest puncture being made, and dries upon the stem in little rounded lumps, or tears, as they are called. Propagated by seeds.

Doronicum. Leopard's Bane. Altered from *Deronogi*, its Arabic name. *Linn. Syngenesia-Superflua*. Nat. Ord. *Asteraceæ*.

A genus of showy herbaceous perennials, with large, dark yellow flowers, that are produced with the least possible care in early spring. They make very effective border plants. They are natives of Northern Europe. Propagated by division of roots. Siberia furnishes one species, *D. altaicum*, that has pure white flowers, and is an ornamental plant that deserves a situation in the border. Introduced in 1783.

Doryanthes. From *dory*, a spear, and *anthe*, a flower; the flower-stem shoots up from twelve to twenty feet high, like the handle of a spear, bearing flowers on the top. *Linn. Hexandria-Monogynia*. Nat. Ord. *Amaryllidaceæ*.

D. excelsa, introduced in 1800, is a magnificent Australian plant, and is what is termed an imperfect bulb. The flower-stalk has been known to grow as high as thirty feet, crowned with a head of bright scarlet flowers, that emerge from crimson bracts. It does well in a green-house temperature. *D. Palmeri*, recently introduced from Queensland, is described as being a more beautiful plant than the preceding. The flowers form a pyramidal spike twelve to eighteen inches high, and ten to twelve inches broad, the flowers being red, with a center almost white. Propagated by suckers.

Doryopteris. From *dory*, a spear, and *pteris*, a fern; spear-leaved *Fern*. *Linn. Cryptogamia-Filices*. Nat. Ord. *Polypodiaceæ*.

A genus of tropical herbaceous Ferns, allied to *Pteris*. Some of the species were introduced under the latter genus. They are common in South America and the East and West Indies. Propagated by spores.

Douglasia. Named by Dr. Lindley in compliment to *David Douglas*, whose zeal in collecting seeds and plants, and whose untimely end have richly earned for him a niche in the long gallery of departed martyrs to science. "Mr. Douglas was born in Scone, Scotland, in 1798, and killed in the Sandwich Islands, July 12th, 1834. Having been employed as a laborer in the Glasgow Botanic Garden, his intelligence attracted the notice of Sir William Hooker, who procured for him an appointment as botanical collector to the Horticultural Society of London. In this capacity he traveled extensively in America. In 1824 he explored the Columbia River and California, and in 1827 traversed the continent from Fort Vancouver to Hudson's Bay, where he met Sir John Franklin, and returned with him to England. He made a second visit to the Columbia in 1829, and afterward went to the Sandwich Islands. His death was caused by falling into a pit made to entrap wild cattle, where he was killed and mutilated by an animal previously entrapped. Through his agency 217 new species of plants were introduced into England. He collected 800 specimens of the California Flora. A gigantic species of Pine which he discovered in California is named after him, *Pinus Douglasi*." *Linn. Pentandria-Monogynia*. Nat. Ord. *Primulaceæ*.

This is a very pretty hardy herbaceous plant, with forked and closely-tufted stems, which are covered with numerous short, stiff hairs. The plant is evergreen, and, like many others from high latitudes, will not bear sudden changes; consequently it needs protection in winter. The flowers are small, of beautiful purple, borne in small tufts. Propagated by seed. Introduced in 1827.

Dove-Flower. See *Peristeria*.

Draba. From *drabe*, acrid; referring to one of the universal characters of its natural order. *Linn. Tetradynamia*. Nat. Ord. *Brassicaceæ*.

A genus of hardy rock or Alpine plants, consisting of annuals, biennials, and herbaceous perennials. They are very low plants, admirably adapted for rock-work, as they are generally found in a wild state in the fissures and crevices of rocks and mountains. They have white or yellow flowers, and should be grown with good drainage and a sunny exposure. Propagated by root division, or by seeds. First introduced in 1731.

Dracæna. From *drakaina*, a female dragon; the thickened juice becomes a powder, like the dragon's-blood. *Linn. Hexandria-Monogynia*. Nat. Ord. *Liliaceæ*.

Dracænas rank among the most beautiful and useful of the ornamental-foliaged and fine-leaved plants. In a large or small state they are alike elegant and attractive. They are deservedly popular for the green-house or the sub-tropical garden, and for lawn decoration, large plants of many of the species have no equal. The species include the celebrated Dragon Tree *(D. Draco)* at Orotavia, in the island of Teneriffe, that was first noticed by Humboldt, who estimated its age at 6,000 years. This tree was seventy feet in height and seventy-nine feet in circumference at the base. *D. terminalis*, a native of both the East and West Indies, is the best known

of the species, and is extensively grown for baskets, window gardens, or the conservatory, the vivid coloring of its leaves rendering it at all times attractive. For the hot-house, many other of the species are considered more desirable and interesting because of their varied and rich tints of color, and their gracefully recurved foliage. Nearly all the species are admirably adapted for decorative purposes. For the sub-tropical garden or for the lawn, *D. indivisa* (*Cordyline indivisa*,) is the best, being of graceful habit, rapid growth, and not affected by sunshine, storm, or drought. This species is a native of New Zealand, and is readily increased from seed. The other species are propagated by placing the stems on the propagating bench in sand, with a bottom heat of 75°, and covering them with sphagnum about one inch in depth, which should be kept at all times moist; in a short time an eye will break forth from nearly every joint. The most forward of these may be removed from the stem from time to time, which will soon strike root in sand with bottom heat. The old stem should not be removed until its reproductive powers are exhausted. The species are pretty generally distributed throughout all tropical and sub-tropical countries, and were first brought to notice about 1820.

Dracocephalum. Dragon Head. From *drakon*, a dragon, and *kephale*, a head; referring to the gaping flower. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

This genus consists of both hardy annuals and perennials, several of which are well known as garden flowers, among which may be found *D. Moldavicum*, the Moldavian Balm, a hardy annual with blue flowers. Several hardy species, perennials, natives of Siberia, have beautiful large blue flowers. One very pretty species, *D. parvifiorum*, is sparingly met in the Northern and Western States. All are propagated by seed or root division. Introduced in 1731.

Dragon Arum. See *Arisæma.*

Dragon Head. See *Dracocephalum.*

Dragon Root. *Arisæma Dracontium.*

Drimia. From *drimys*, acrid; referring to the juice of the bulbs. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of green-house bulbs from the Cape of Good Hope. The flowers are white, purple, red, green, and variegated, and resemble the Ixias, though not as showy. The juice of the bulb is very acrid, causing blisters when applied to the skin. Propagated by offsets. Introduced in 1800.

Drooping Sorghum. See *Sorghum cernuum.*

Drop-seed Grass. The common name of the genus *Sporobolus*, applied because the seeds are loose, and easily scattered. The several species are common in dry barrens.

Dropwort. See *Spiræa.*

Drosera. Sun-dew. From *droseros*, dewy. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Droseraceæ.*

American, British, and Australian plants, with hairy leaves and curious flowers, which require to be grown in moss, mixed with leaf mould, kept moist, and during the heat of the day covered with a bell glass. The hairs on the leaves support drops of water in the hottest weather, and being very irritable, close on any insect that may chance to touch them, like those of *Dionæa muscipula*, Venus's Fly-trap, the leaf bending over the insect, and holding it imprisoned. The Italian liqueur called Rossoglia is said to take its name from one of the species being used in its composition. This is one of the plants experimented

with by Mr. Darwin, from which he was led to believe that some plants feed on insects.

Dryas. From *Dryades*, the goddesses of the woods, to whom the oak was sacred. The leaves of *D. octopetala*, a Scotch plant, on which the genus was founded by Linnæus, resembles small oak leaves; and he, in playful mood, made Dryas the badge of Virgil's Dryades, after the manner of the Scottish clans. *Linn. Icosandria-Polygynia.* Nat. Ord. *Rosaceæ.*

A delicate genus of dwarf, moderately-spreading plants, with neat evergreen leaves, and strawberry-like flowers. All have white flowers except *D. Drummondii*, which are of a sulphur yellow. They are all of easy culture, but require a moist, shaded situation. They are natives of Great Britain and the United States. Propagated by division and seeds.

Drynaria. From *drys*, a tree; dwelling among trees. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of green-house Ferns from India and the Pacific Islands.

Drypis. From *drypto*, to lacerate; leaves armed with spines. *Linn. Pentandria-Trigynia.* Nat. Ord. *Caryophyllaceæ.*

D. spinosa is a beautiful little trailing plant, well adapted for growing upon rock-work; its pretty blue flowers being produced so as to completely cover the ground. It is increased by cuttings. This plant is a native of Italy, and was introduced in 1795.

Durra. See *Sorghum vulgare.*

Dutchman's Breeches. *Dicentra cucullaria.*

Dutchman's Pipe. See *Aristolochia sipho.*

Duvaua. In honor of *M. Duvau*, a French botanist. *Linn. Monœcia-Octandria.* Nat. Ord. *Anacardiaceæ.*

Singular half-hardy shrubs from Chili. The leaves of the plants of this genus, if thrown upon water, will start and jump about in a very extraordinary manner. They have a strong smell of turpentine. The flowers are white, produced in small spikes, and are succeeded by dark purple berries. They require green-house treatment. Propagated by cuttings. Introduced in 1830.

Dwarf Dandelion. *Krigia Virginica*, a small, hardy annual, with yellow flowers resembling a small Dandelion, common in New England and Southward.

Dyckia. Named in honor of *Prince Salm-Dyck*, a German author of a splendid work on succulents. *Linn. Hexandria-Triygnia.* Nat. Ord. *Bromeliaceæ.*

A small genus of green-house plants, resembling the Pineapple in miniature, or a small Pitcairnia. *D. rariflora* is a very showy plant with orange-colored flowers. One or two other species of the same general character have been introduced into the green-house. Propagated by division or from seeds.

Dyer's Green-Weed. See *Genista tinctoria.*

Dyer's Rocket, or **Dyer's Weed.** A popular name of *Reseda latiola*, allied to Mignonette.

Drymonia. From *drumonia*, woodland; their habitation. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

A small genus of South American shrubs, of climbing habit, found in moist or marshy situations. Flowers large, not unlike the *Gesnera.* A few species have been introduced into the green-house, and are quite ornamental. They should be grown in baskets filled with turf and pieces of wood, and need a moist, warm house. Propagated by cuttings. Introduced in 1806.

E.

EAR

Earina. From *earinos*, the spring; the time of their flowering. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A genus of very rare Orchids. The stems are terminated by dense oblong spikes of white flowers, which are delightfully fragrant. They were introduced from New Zealand in 1843.

Ebony. See *Diospyros.*

Eccremocarpus. From *ekkremes*, pendant, and *karpos*, fruit; position of seed-pods. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Bignoniaceæ.*

A half-hardy climber, of exceedingly vigorous growth, producing a great profusion of orange-scarlet flowers, and ripening an abundance of seed. If cut down to the root in autumn, and covered with dead leaves, straw, or anything to preserve it from the frost during winter, it will shoot up again the following spring. It may be propagated by cuttings, but it ripens seed so freely that it is most easily raised from them. They should be sown in autumn, as soon as they are ripe, on a slight hot-bed; and the plants, which should be kept in a frame or green-house, should be shifted two or three times till they are ready for planting out in April or May. The species are natives of Peru. Introduced in 1824.

Echeandia. Named after *Greg. Echeandia*, botanical professor at Saragosss. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of exceedingly rare tender herbaceous perennials, discovered near the Real del Monte Ninas, Mexico, by Mr. John Rule, and sent by him to England in 1837. It is allied to the *Anthericum*, which in habit of growth it resembles. The flower spike grows nearly three feet high, branching, and during July and August it produces daily several flowers, Asphodel-shaped, of a bright orange-yellow color. It is increased from seeds.

Echeveria. In honor of *M. Echeveri*, author of the splendid drawings of the Flora Mexicani. *Linn. Decandria-Tetragynia.* Nat. Ord. *Crassulaceæ.*

The Echeverias are succulent plants, all more or less ornamental, particularly so when in flower. Some are dwarf and herb-like in their manner of growth, and others more or less shrubby in their habit. They are all free-growing plants, suitable for rockeries, edgings, or massing; where "carpet bedding" is done the *Echeverias* are indispensable. They require the protection of the green-house during winter, and, like most other succulents, to be carefully watered; in fact, the soil must never approach a soddened condition. They must, however, be freely supplied with water while in a growing condition. The Echeverias are readily propagated by the leaves, especially those produced along the flower-stem, and by seeds. They require a very open or porous soil, consisting of loam and coarse sand. They are chiefly natives of Mexico. Some of the more popular kinds are of recent introduction.

Echinacea. Purple Cone-Flower. From *echinos*, a hedge-hog; referring to the involucre, or scaly covering of the flowers. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A small genus of coarse-growing, hardy herbaceous perennials, bearing large purple or reddish flowers, with a dark center. They are common South and West.

EDW

Echinocactus. From *echinos*, hedge-hog, and *cactus;* a name given by Theophrastus to a spiny plant. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

This genus is one of the most beautiful of the order; the grotesque appearance of the plants, crowned as they are at times with their large flowers, render them objects of much attention among the admirers of this class of vegetable forms. The soil we prefer for their culture is a mixture of rich loam, thoroughly decomposed manure, and sand, in equal quantities. This must be well drained by mixing small lumps of charcoal and potsherds with the earth, and by placing a layer of the same material at the bottom of the pots. Through the winter the plants should be kept in a reduced temperature, such as that of a green-house, and have little or no water, but in summer they grow and flower more freely if allowed a stove temperature and a liberal supply of moisture. Bright sunlight is essential to their vigor at all seasons, but most particularly so in autumn and winter. The genus comprises many species; more than half of them natives of Mexico, the rest being distributed throughout South America. They are propagated by offsets, which should be dried a few days after being taken off the plant. First introduced in 1796.

Echinops. Globe Thistle. From *echinos*, a hedge-hog, and *opsis*, like; referring to the spiny scales of the involucre, or covering of composite flowers. *Linn. Syngenesia-Segregata.* Nat. Ord. *Asteraceæ.*

A genus of hardy annual, biennial, and perennial plants, generally with blue flowers, arranged in dense round clusters at the ends of the branches, so that each cluster of flower-heads has the appearance of a single head, containing many florets. They are all of easy culture, and will grow in almost any situation. For moderate-sized gardens, they are too rank growing and coarse to be useful. Natives of Southern Europe. Propagated by seeds and division.

Echites. From *echis*, a viper; referring to the snake-like coils of the twining shoots. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

A genus of magnificent green-house climbing plants, with yellow, white, red, and crimson flowers and richly-veined leaves. They closely resemble *Dipladenia*, which may be referred to for culture. It is an extensive genus, pretty generally distributed throughout South America and the East Indies.

Echium. Viper's Bugloss. From *echis*, a viper: seeds like the viper's head. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boranginaceæ.*

Perennial, biennial, and annual plants, generally with rich dark-blue flowers; though some of the kinds that are natives of the Cape of Good Hope and the Canaries have red, white, or violet flowers. They are easily propagated by seeds or division of the root. First introduced in 1683.

Edwardsia. In honor of *Sydenham Edwards*, a celebrated English botanical draughtsman. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

Half-hardy low trees and shrubs, with pinnate leaves and very curiously-shaped seed pods and flowers, (which are of a dark golden yellow.) They are ornaments to the lawn, but must be protected in winter. The species are all natives of New Zealand. Propagated by cuttings. Introduced in 1772.

Eel-Grass. See *Vallisneria.*

Egg-Plant. The Egg-Plant of our gardens is *Solanum melongena*, a native of North Africa. It was first introduced into England in 1596, but for a long time was little known or used, owing much to the climate being unsuited to the perfect development of the fruit. In India and other hot countries it is a favorite article of food, and for many years it has steadily grown in favor in this country. In India it is served up with sugar and wine, and in Italy and France it is used in stews and soups. Of this species there are several varieties, the favorite being the "Improved New York Purple," which is a strong grower, the plants yielding from five to eight fruits, some of which are of enormous size; the size, however, depends much on the soil and method of culture. For perfection of growth, a very rich soil, plenty of moisture, and warm weather are required, with the addition of frequent hoeings. Under such circumstances, fruit seven inches in diameter and eight to nine inches long, and weighing five to six pounds, is easily obtained. There are several other species occasionally met in our gardens, one having bright scarlet, another white fruit, each about the size of a hen's egg, which are chiefly grown as curiosities. The white variety is edible, however, and is perhaps the most delicately flavored. Seeds should be sown about March 1st, in a temperature at no time lower than 70 degrees F., and from the seed bed pricked out in shallow boxes, and from these, again, into small flower pots, to be planted out in the open ground when all danger from frost is past, since the plant, being tropical, is at all times sensitive to cold.

Eglantine. *Rosa rubiginosa.* Sweet Brier.

Egyptian Lotus. See *Nymphæa lotus.*

Ehretia. In honor of *D. G. Ehret*, a celebrated German botanical draughtsman. *Linn. Pentandria-Monogynia.* Nat. Ord. *Ehretaceæ.*

A small genus of very beautiful tropical trees and shrubs, producing large corymbs of fragrant, mostly white flowers. None of the species is under cultivation.

Elæis. The Oil Palm. From *elaia*, the olive; similarity of expressing oil from the fruit. *Linn. Diœcia-Hexagynia.* Nat. Ord. *Palmaceæ.*

This interesting genus of Palms consists of but few species, the minor ones being natives of South America. *E. Guineensis*, the most important species, abounds on the west coast of Africa. It grows to the greatest perfection in shady places, where the trees attain a height of twenty feet. The immense groves interspersed with the larger vegetation of that country, gives the landscape an indescribable beauty. The fruits of this species are borne in immense, dense heads, measuring from one to two feet long, and from two to three feet in circumference, the individual fruit, or nut, being about an inch and a half long by an inch in diameter. These fruits yield the Palm Oil of commerce, the collecting of which is the principal industry of the Negroes in many parts of Africa, but more particularly on the west coast. The oil is obtained by bruising the fruit, boiling in water, and skimming it off as it rises to the surface. The Palm Oil of commerce is about the consistence of butter, of a deep orange yellow, becoming lighter upon being exposed to the air, and when fresh it emits a sweet violet odor. In Africa this oil is used as butter under the name of *ghea*. A soup is also made of it, that forms an important article of food. The vast productiveness of the plant is evident from the fact, that the importations into Great Britain alone, in 1860, amounted to more than eight millions of dollars. The chief uses to which this oil is applied is in the manufacture of candles, Palm Oil soap, and for lubricating oil for machinery.

Elder. See *Sambucus.*

Elecampane. See *Inula.*

Elephant's Foot. See *Testudinaria.*

Elæocarpus. From *elaia*, the olive, and *karpus*, fruit; resemblance of the fruits. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus of handsome trees belonging to the Linden family. They are natives of South America, Australia, and the East Indies. The flowers are white or green, quite showy. The rough bony fruit, or stone, has a sculptured appearance, and is used for necklaces and other articles of ornament. The fruit is surrounded by an edible pulp, and is pickled like olives. The bark of some of the species affords an excellent dye, varying from light brown to deep black; it is highly valued for its permanency.

Elæodendron. Olive Wood. From *elaia*, an olive, and *dendron*, a tree, alluding to the resemblance. *Linn. Pentandria-Monogynia.* Nat. Ord. *Celastraceæ.*

A genus of medium-sized evergreen trees, common in Africa, India, the South of Europe, and is also abundant in the Holy Land. The trees grow from thirty to forty feet high, much branched, with rough, scraggy trunks. The fruit is considerably esteemed. The tree furnishes the Olive Wood, used so much in turning, and various small works, such as boxes, charms, trinkets, and small cabinet work. The fruit yields an oil something like that of the true Olive, *Olea Europæa*, though of an inferior quality.

Elichrysum. See *Helichrysum.*

Elisena. An ancient name of romance. *Linn. Hexandria-Mongynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of strong-growing bulbs from Peru. The flowers are borne in a cluster, on a scape nearly three feet high, pure white and fragrant, closely resembling *Ismene.* They require green-house treatment. To bring them into flower, water should be withheld after their season's growth, until the flower spike appears, when they should have the warmest position in the green-house, with plenty of air and water. Propagated by offsets. Introduced in 1837.

Elettaria. A synonym of *Amomum*, which see.

Ellobocarpus. Pod Fern. From *en*, in, *lobos*, a pod, and *karpos*, a seed vessel; alluding to the appearance of the divided fronds. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

E. oleraceus, the only species, is a beautiful Fern from Tranqueb, whence it was introduced in 1818. It should be grown in the warm green-house.

Elm. See *Ulmus.*

Encholirion. A genus of *Bromeliaceæ*, consisting of a few Brazilian herbaceous plants, usually referred to *Vriesia*, which see.

Encephalartos. From *en*, within, *kephale*, the

head, and *artos*, bread; the inner part of the top of the trunk being farinaceous. *Linn. Diœcia-Icosandria.* Nat. Ord. *Cycadaceæ.*

This is a small genus separated from *Zamia.* They require the same treatment, and are in all respects very similar plants. They are natives principally of the Cape of Good Hope. Several of the species are valuable decorative plants.

Enchanter's Nightshade. See *Circœa.*

Enkianthus. From *enkous*, enlarged, and *anthos*, a flower; the flowers are swollen in the middle. *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ.*

Highly beautiful objects, which, from their habit of blooming in winter and early spring, are much esteemed for ornamenting the greenhouse and conservatory. They should have a shaded situation out of doors through the summer. Propagated by cuttings, which require to be of firm young wood. There are but two species. Introduced from China in 1812.

Entada. The Malabar name. *Linn. Polygamia-Monœcia.* Nat. Ord. *Fabaceæ.*

A genus of ornamental hot-house climbers, consisting of five species, with white or yellow flowers, produced either in spikes at the bases of the leaves, or in bunches at the ends of the branches. The most remarkable feature of the genus is the extraordinary length of its pods, which are flat and woody, divided into numerous joints, each containing one large, flat, polished seed. In *E. scandens*, a native of the tropics of both hemispheres, the pods often measure six or eight feet in length. The seeds are nearly two inches across by half an inch thick, and have a hard, woody, and beautifully polished shell, of a dark-brown or purplish color. In the tropics the natives convert these seeds into snuff-boxes, scent-bottles, and various other trinkets. In this country they are much worn as charms on watch-guards, and are very common in their natural state on the side-walk stands in Broadway, New York. They are natives of the West and East Indies and the South Sea Islands. The seeds are often picked up on the coast of Florida, and even as far as the coast of Finland, having been conveyed there by the great oceanic currents. They are sold under the name of Sea Beans and Florida Beans.

Epacris. From *epi*, upon, and *akros*, the top. The Epacris grows upon the tops of hills and on rising grounds. *Linn. Pentandria-Monogynia.* Nat. Ord. *Epacridaceæ.*

An extensive genus of ornamental shrubs from Australia, the species of which are highly valued, both for their graceful beauty and the early period at which they produce their abundant flowers. For a proper method of treatment, we quote from the Florist's Journal: "The method we are about to recommend for the management of these lovely plants will be found to differ considerably from the ordinary course of treatment, but as we have found it so decidedly preferable, there can be no hesitation in advising its adoption. To begin, we select young, healthy plants, and in February remove them from the small pots in which they have been grown into others threo or four sizes larger, according to the apparent strength of the individual, using a very sandy soil; the rougher and more turfy the soil is the better the plants will thrive. Particular attention should be paid to drainage. The plants are then cut back to within four or five joints of their last growth and are placed in a gentle heat, where they soon 'break' vigorously. These new growths are stopped by pinching off their tops two or three times in the course of the summer, taking care, however, to discontinue it after July, so that the last shoots may have time to ripen before the winter, and, by giving proper attention to watering, they will attain a length of a foot or more, and make nice little specimens to bloom in the following spring. After they have then done flowering, they are again repotted, and, instead of being stopped in their after-growth, are at once cut back to very near the base of the preceding year's shoots, and are then allowed to grow as far as they please, training them into any desirable form. Thus, instead of a few flowers on several small stems, we have long spikes full of flowers, increasing the general beauty of the plants to an amazing extent. Every year they are cut down in the same manner, and each season more numerous spikes are produced. We must observe, however, that after the first season the plants are not subject to a high temperature, choosing in preference a shaded, airy place for them to make their new wood through the summer, removing them about August to a sunny position, in order to ripen the recent shoots; in other respects the ordinary attention is all that is required." Hardly as good results can be obtained in this country, as they suffer, like the Heath, from our long, dry, hot summers. Propagated by cuttings of the tips of the shoots when from one to two inches in length, in spring or early summer. *E. grandiflora*, one of the finest species, was introduced in 1803.

Ephedra. The Greek for the Hippuris, or Horsetail, which it resembles. *Linn. Diœcia-Polygynia.* Nat. Ord. *Gnetaceæ.*

This genus consists of evergreen trailing shrubs with numerous slender-jointed, green branches, and small, scale-like leaves. These shrubs inhabit the rocky shores of the Mediterranean and salt plains of Asia. Some of the species are very ornamental, but not sufficiently hardy to stand the winters, unprotected, north of the Carolinas. One of the species, *E. antisyphilitica*, is said to contain large quantities of *tannin.*

Epidendrum. From *epi*, upon, and *dendron*, a tree; the plants are usually found growing on the branches of trees. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

This is an extensive, and, for the most part, beautiful genus of epiphytal Orchids. All of them may be grown on billets of wood or on cork, or, where it is preferred, for the stronger-growing species, pots may be used, and in the latter case it is indispensable that the soil be porous and well drained. It should consist of equal parts of sphagnum moss, leaf mould, and rotten wood, filling the pots for two-thirds their depths with broken potsherds, and when the plants are placed in them, the base of their pseudo-bulbs must be kept considerably above the rim, so that water may not lodge near them. The same relative variations of temperature should be observed for these as mentioned for Dendrobium, keeping it at an average of ten degrees lower than recommended for that genus; and as the same principles govern the growth of each, the like changes of atmospheric influence are necessary in either case. The genus consists of over 300 species, distributed throughout

the West Indies, Mexico, and South America. Propagated by division. The first species was introduced in 1738.

Epigæa. Trailing Arbutus. From *epi*, upon, and *gaia*, the earth; referring to its trailing habit. *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ.*

E. repens, the only species, is one of our most beautiful native, early spring-flowering plants. It is a low-growing evergreen shrub, producing axillary clusters of small rose-colored flowers, remarkable for their rich, spicy fragrance. They are usually found in the shade of Pines or Scrub Oaks. In warm, sheltered situations they show their flowers early in April. It is commonly known on Long Island, where it grows in great abundance, as Trailing Arbutus, in New England as May Flower, and in many localities as Ground Laurel. It can be easily grown in the shaded border by removing the plant from the woods in autumn, being careful not to disturb the roots. After planting in a sandy soil protect from sun and winds by a slight covering of dry leaves. Clumps carefully taken up in autumn, and put in a cool greenhouse in February, will come into flower in March.

Epilobium. Willow Herb. From *epi*, upon, and *lobos*, a pod; flowers superior or seated on the seed-pod. *Linn. Octandria-Monogynia.* Nat. Ord. *Onagraceæ.*

A genus of tall-growing, hardy herbaceous plants, chiefly natives of Europe, some of which have become naturalized in this country. Several of our native species are showy plants, with large spikes of pink flowers, that would make them conspicuous border plants. They are all of easy culture, taking care of themselves when once planted. They are increased by division in spring, or from seeds.

Epiphoria. A pretty little terrestrial Orchid, from South Africa, with yellow flowers streaked with red. *E. pubescens*, the only species, was taken from *Polystachia*, which see.

Epiphyllum. Crab's Claw Cactus, Lobster-leaved Cactus. From *epi*, upon, and *phyllon*, a leaf; flowers borne on the ends of the leaf-like branches. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

A genus of very beautiful Cactaceous plants, natives of Brazil, where they are generally found upon the trunks of trees. The varieties are numerous. They are largely cultivated for their showy flowers, the colors being various; they are produced upon the ends of the branches. *E. truncatum* and its varieties are the kinds usually met in our green-houses. The Epiphyllum is often grafted on *Cereus triangularis*, *C. grandiflorus*, *C. serpentinus*, and others, but does best, perhaps, on the *Pereskia*. A large, symmetrical head is easily formed, and with proper attention will make a plant worthy of a situation in any green-house. Their culture is of the easiest description. They delight in a rich, well-drained, sandy soil, and should have plenty of air, water, and sunlight while they are growing. The Epiphyllum is one of the best of sitting-room plants, and may be had in bloom from November to March with good management. There were formerly many species included in this genus, most of which are now found in *Cactus*, *Cereus*, and *Phyllocactus*.

Episcia. From *epi*, upon, and *skia*, a shadow; on account of the plants delighting in shady places. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

A small genus, nearly related to *Besleria*, natives of the West Indies and Central America. They require the same treatment as the various other classes of this natural order.

Equestrian Star. See *Hippeastrum.*

Eranthemum. From *eraο*, to love, and *anthos*, a flower; referring to the beauty of the flowers. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A somewhat extensive genus of winter-flowering green-house plants, found pretty generally distributed throughout tropical and sub-tropical countries. The flowers are small, purple, white, blue, or rose colored. They require the treatment of soft-wooded plants of the same class. Two species of recent introduction, *E. tricolor* and *E. sanguineα*, are equal to Dracænas in their beautiful crimson and carmine-colored foliage, which fit them either for massing outside or as specimens in the green-house. Propagated by cuttings. Introduced in 1796.

Eranthis. Winter Aconite. From *er*, spring, and *anthos*, a flower; referring to its early flowering. *Linn. Polyandria-Hexagynia.* Nat. Ord. *Ranunculaceæ.*

A small genus of hardy tuberous-rooted plants, natives of Italy and Siberia. *E. hyemalis* is the well-known Winter Aconite. It is one of the earliest and most hardy of spring flowers, throwing up its pretty yellow blossoms long before the snow disappears, and continuing in flower for several weeks. This is the only species under cultivation, and is freely propagated by division of the tubers. It has been under cultivation since 1596.

Eria. From *erion*, wool; referring to the down on the leaves of some of the species. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of pretty flowering hot-house Orchids, allied to Dendrobium, mostly from the East Indies. They require the same treatment as Stanhopea. Propagated by division. Introduced in 1837.

Erianthus. Woolly Beard-Grass. From *erion*, wool, and *anthos*, a flower. *Linn. Triandria-Trigynia.* Nat. Ord. *Graminaceæ.*

A small genus of tall-growing, reed-like grasses. The *E. Ravennæ*, a rival to the Pampas Grass, though not so beautiful, is more valuable in this latitude, being perfectly hardy, and producing its graceful plumes in autumn in great abundance. It makes a magnificent lawn plant. Propagated by root division and from seed. Introduced in 1824.

Erica. Heath. From *erico*, to break; referring to the brittle nature of the wood. *Linn. Octandria-Monogynia.* Nat. Ord. *Ericaceæ.*

This genus comprehends a great number of species, the most of which are very beautiful and interesting plants. Several hundred of the species, including all that are desirable for indoor culture, are natives of Table Mountain at the Cape of Good Hope. They all occupy elevated ranges, enjoying a pure air, refreshed by copious dews, and exposed for a long period to a dry, arid atmosphere. The Heath, however, can never be cultivated as successfully here as in England, as our climate is too dry and hot in summer. They are readily propagated by cuttings of half-ripened wood, which is in proper condition when it begins to turn brown. They are easily grown from seed, an interesting way, on account of the varieties produced when a little care has been given in cross-fertilization. The seeds should be sown in pots of finely-sifted leaf-mould, pressed tightly into the pot, well watered before sowing,

and afterward covered with a bell glass. They should then be kept in a cool house or pit, where they can have an even temperature and moisture. They were first introduced into England in 1774.

Erigeron. From *er*, the spring, and *geron*, an old man; some being hoary with a downy covering early in the season. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A genus of coarse-growing, unpretending, herbaceous plants, found common in waste places throughout the United States. In some localities known as Fleabane. Plants of no value in their native country.

Erinosma. From *er*, the spring, and *osme*, to smell; referring to the early flowering of this sweet-scented bulb. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of handsome, early, spring-flowering bulbs, resembling the Snow-drop, but flowering much later. *E. vernum*, formerly called *Leucojum vernum*, the best of the species, is a native of Germany and Switzerland, where it is common in the woods and other shady places. It was introduced in 1596; is dedicated to St. Agnes, the patron saint of young virgins, from its loveliness and purity; and hence it is called St. Agnes's Flower. The flowers are much larger than the Snow-drop, pure white, with a yellowish-green spot near the point of each petal. They are perfectly hardy and are increased by offsets.

Erinus. Meaning unknown. (The wild Fig-tree is the *Erinos* described by Dioscorides. It has, however, no resemblance to the *Erinos* of the moderns.) *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

This is a small genus of hardy herbaceous Alpine plants, suitable for rock-work or other rough, uneven situations. They are low growing, generally forming close tufts, producing lively purple and white flowers in early spring. Though perfectly hardy, they are impatient of water, and, consequently, should have the protection of a frame in winter, unless planted in a very dry situation. There are one or two evergreen species from the Cape of Good Hope, but they are little known. The hardy species are propagated by root division or from seed. First introduced into the garden in 1739.

Eriocnema. From *erion*, wool, and *kneme*, a knee; the joints are woolly. *Linn. Decandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

A small genus of green-house herbaceous plants, allied to the *Sonerila*, and natives of Brazil. The flowers are white, produced sparingly in little umbels on the end of a naked stalk. *E. marmoratum* has beautifully variegated leaves, green striped with broad bands of white. Its habit is not unlike some of the Begonias. Propagated by cuttings. Introduced in 1850.

Eriophorum. Cotton Grass. From *erion*, wool, and *phoreo*, to bear; in reference to the silky tails or coverings of the seeds. *Linn. Triandria-Monogynia.* Nat. Ord. *Cyperaceæ.*

A very interesting genus of marsh or bog plants, commonly, but incorrectly termed grasses. They are hardy herbaceous plants, growing in dense clumps or masses, very conspicuous and interesting, on account of the flowers of some of the species, the heads of which appear like tufts of cotton. One of the species is indigenous in this country, and several of them have been naturalized from Europe.

Eriopsis. From *eria*, a well-known genus of

Orchids, and *opsis*, resemblance; woolliness of flowers. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of Orchids, having the general appearance, while growing, of the genus *Eria*, but with gay orange-colored flowers resembling the Vandas. They are natives of Mexico and New Grenada, but little cultivated.

Eriospermum. From *erion*, wool, and *spermos*, a seed; woolly-seeded. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A considerable genus of bulbs from the Cape of Good Hope, the flowers of which precede the leaves. The flowers have no special beauty, and the leaves always have a deformed appearance.

Eriostemon. From *erion*, wool, and *stemon*, a stamen; referring to the woolly stamens. *Linn. Decandria-Monogynia.* Nat. Ord. *Rutaceæ.*

A genus of handsome green-house plants from New Holland, of neat, compact habit of growth, and free-flowering. Flowers are white or pinkish, produced singly at the axils of the leaves. They require plenty of air and light. Propagated by cuttings of young shoots in April. Introduced in 1824.

Erodium. Heron's-bill. Wild Geranium. From *erodios*, a heron; referring to the resemblance of the style and ovaries to the beak and head of the heron. *Linn. Monadelphia-Digynia.* Nat. Ord. *Geraniaceæ.*

The genus Erodium differs from the Geranium and Pelargonium in the shape of its seed vessel. In all the three the seed-pod resembles the head and beak of a bird; in Geranium it resembles a crane's bill, in Pelargonium it is a stork's bill, and in Erodium a heron's bill. The species are dwarf annuals and perennials, producing mostly lilac and purple flowers. Though interesting, their flowers will not bring them into competition, for the garden, with their more showy relatives, the Pelargonium and Geranium.

Ervum. Lentil. From *erw*, tilled land, in Celtic; some of the species are pests in cultivated ground. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Fabaceæ.*

A genus justly classed as weeds, the only species of interest being *E. Lens*, the common Lentil, a plant of the greatest antiquity. It was from the seed of this that the pottage was supposed to have been made, for which Esau sold his birthright. From that date it has been held in high esteem in Egypt and Syria. It is considered an indispensable diet by the natives, who undertake long journeys. It is largely sold by druggists under the name of Ervalenta.

Eryngium. Eryngo. From *Eryngeon*, a name adopted by Pliny from Dioscorides. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

A very extensive genus of hardy annuals and herbaceous perennials, the latter being common throughout Europe. *E. maritimum*, Sea Eryngo, or Sea Holly, is a conspicuous plant along the English coast; the flowers are thistle-like, of a bright blue color. *E. amethystinum*, a native of Dalmatia, is one of the best for the border of the perennial species. The flowers, as well as the bracts and upper part of the stems, have a beautiful blue tint. Of the annual species, *E. Leavenworthii*, a native of Kansas and westward, is not only the best of its class, but is one of the best of our hardy annuals. It is very floriferous, the heads are of a beautiful purple, which, if cut after maturity, will keep their color for several months, making them valuable for winter bou-

quets. The plant grows about two feet high and is very branching. It is strictly an autumn flowering plant, but if the seeds are sown early in spring in a hot-bed, the season of flowering will be greatly prolonged.

Erysimum. Hedge Mustard. From *eryo*, to draw; it is considered a powerful cure for sore throat; it is also said to draw and produce blisters. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

An extensive genus, mostly biennials. All of but little merit. One or two cultivated species of hardy annuals make rather effective clumps in the border. *E. Arkansanum*, western Wall-flower, grows about two feet high, the stem being crowded with bright orange yellow flowers as large as those of the Wall-flower. Propagated by seed.

Erythræa. From *erythros*, red; the color of the flowers of some of the species. *Linn. Pentandria-Monogynia.* Nat. Ord. *Gentianaceæ.*

A somewhat extensive genus of biennials and annuals. The latter are of easy culture, and produce freely small pink flowers. Seed should be sown in autumn in the open border. The biennials require the protection of the frame, which their merits do not deserve. The annuals are natives of Europe, and have been long known in the garden.

Erythrina. Coral-tree. From *erythros*, red; the color of the flowers. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Fabaceæ.*

A genus of ornamental flowering green-house shrubs, commonly known as Coral-trees. They are found pretty generally distributed throughout the tropics of both hemispheres. All produce scarlet or crimson pea-shaped flowers in pairs at the axils of the leaves. *E. Crista-galli* and *laurifolia* are from Brazil. Both succeed well planted out in a warm situation in the open border, producing flowers in the greatest abundance. They require considerable room, being rank growers. As a shrub for the lawn they have few if any superiors, their showy flowers contrasting finely with their bright glossy foliage. *E. Hendersonii*, a variety of recent introduction, is one of the very finest flowers, a bright scarlet, smaller than the other species, but produced in greater abundance. As it flowers earlier it seeds freely, so that it can be grown as an annual plant. The only care required is to take the plants up, after the tops are killed by frost, and keep them through the winter in a warm dry room or in the cellar. The roots should be kept covered with dry sand. In spring cut well back before planting out. They are readily propagated by cuttings of the tender shoots, or from seed, which should be sown in boxes about the first of January, and they will make flowering plants the coming summer.

Erythrolæna. Mexican Thistle. From *erythros*, red, and *læna*, a cloak; referring to the scarlet flowers. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

E. conspicua, the only species, is the prettiest of all the Thistles. It is a tall plant, growing from eight to ten feet high; the leaves, not unlike the common Thistle, are at the base of the plant, two feet long. The flower-heads, clustered at the ends of the branches, are about three inches long, and very handsome, scarlet and orange. Young plants are readily obtained from seed. Introduced in 1825.

Erythronium. Dog's-Tooth Violet. From *erythros*, red; referring to the color of the leaves

and flowers of the species first discovered. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus of small growing bulbous-rooted plants. Most of the species are American, and are common in moist woods in most of the States. With but one exception the native varieties have large yellow flowers, borne singly on a slender scape six to nine inches high. *E. albidum*, a rare species found in Iowa and southward, has nearly white flowers, without the spots on the leaves common to the species. *E. dens-canis*, common in Europe, has purplish rose-colored flowers, with light rose-color within. Propagated by offsets.

Erythroxylon. From *erythros*, red, and *xylon*, wood; the wood of the trees is red. *Linn. Decandria-Trigynia.* Nat. Ord. *Erythroxylaceæ.*

Bushy shrubs or low-growing trees, chiefly natives of tropical South America and the West Indies. One of the species has a world-wide reputation. For the following account and description of it we are indebted to The Treasury of Botany: "*E. Coca* is the most interesting of the species, on account of its being extensively cultivated, and its leaves largely employed as a masticatory, under the name of Coca, by the inhabitants of countries on the Pacific side of South America. It is a shrub of six or eight feet high, somewhat resembling a Blackthorn bush. The Coca leaves are of a thin texture, but opaque, oval, tapering toward both extremities, their upper surface dark green, the lower paler and strongly marked with veins, of which two, in addition to the midrib, run parallel with the margin. Small white flowers are produced in little clusters upon the branches, in places where the leaves have fallen away, and stand upon little stalks about as long as themselves. The use of Coca in Peru is a custom of very great antiquity, and is said to have originated with the Incas. At the present day it is common throughout the greater part of Peru, Quito, and New Grenada; and also on the banks of the Rio Negro, where it is known as Spadic. Coca forms an article of commerce among the Indians, and wherever they go they carry with them a bag of the carefully dried leaves, and also a little bottle-gourd filled with finely powdered lime, and having a wooden or metal needle attached to its stopper. Four times a day, whatever the nature of his occupation, whether employed in the mines, the fields, as a muleteer, or domestic servant, the Indian resigns himself to the pleasures of Coca chewing, mixing the leaves with lime, or the ashes of *Cecropia*. When used in moderation Coca exerts a pleasurable influence upon the imagination, and induces a forgetfulness of all care. It is also a powerful stimulant of the nervous system, and when under its influence Indians are able to perform long and rapid journeys, and carry heavy loads, without requiring any other sustenance. But when taken in excess it produces intoxication, of a character resembling that of opium rather than alcohol, but not so violent, although the consequences of its prolonged use are quite as injurious, and very few of those who become slaves to the habit attain an old age. Spruce says that an Indian with a chew of Spadic in his cheek will go two or three days without food, and without feeling any desire to sleep." A preparation of Coca, under the name of "Coca Beef Tonic," is now being sold; but those who use it will do well to remember that it does not "make old bones."

Eschscholtzia. Named after *Dr. Eschscholtz*, a botanist. *Linn. Polyandria-Tetragynia.* Nat. Ord. *Papaveraceæ.*

Annual plants, with showy flowers, natives of California, on which account the first species introduced was called the California Poppy. The seeds should be sown in the open border as soon as they are ripe, as, if the sowing be delayed till spring, the plants frequently do not flower till the second year. Sometimes they will live, and flower two, or even three years in succession, though this is very rarely the case.

Eucalyptus. From *eu*, well, and *kalypto*, to cover; the limb of the calyx covers the flower before expansion, and afterward falls off in the shape of a lid or cover. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myraceæ.*

An extensive genus of immense evergreen trees, of the Australian and Tasmanian forests. *E. globulus*, the Blue Gum Tree, has been extensively planted within the past few years in the Southern States and California, for the reputation it has of absorbing malaria. The tree is very ornamental, and furnishes timber of a superior quality. Its rapid growth excites the wonder and admiration of those already accustomed to the extraordinary development of the vegetable kingdom on the Pacific coast. It will be remembered that Australia sent to the World's Fair at London in 1863 a plank from this tree 250 feet long. Young plants are readily obtained from seed or from cuttings. The species are not hardy in the United States north of the Carolinas.

Eucharidium. From *eucharis*, agreeable; in allusion to the appearance of the plant. *Linn. Octandria-Monogynia.* Nat. Ord. *Onagraceæ.*

A genus of pretty little annuals from California, allied to the Clarkias. They come into flower in six weeks after germination, and are perfectly hardy. They succeed best in a rich, loamy soil. Introduced in 1836.

Eucharis. Lily of the Amazon. From *eucharis*, agreeable; alluding to the fragrant flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

As far as known there are but three species in this genus, all free-growing bulbous plants of rare beauty and delicious fragrance. They should be grown in the hot-house or a warm green-house. The flowers are produced in a truss of from four to eight, according to the strength of the bulb and manner of treatment, and are born on a stem that lifts them just above the leaves. They are pure waxy white and of great substance. If asked for the plant producing the best white flowers for the hot-house, for the decoration of vases, or for any other purpose where white flowers are wanted, we should unhesitatingly recommend the Eucharis, as combining all the essentials of the perfect flower. The species are of recent introduction, and from a general impression that they are difficult to manage, are but little grown. The plant is found growing by the side of a river; consequently, moisture and heat are essential to the development of its flowers. The ease with which it is now cultivated, the fact that a dozen or more large pots of it will furnish flowers nearly the whole year, make it invaluable in all collections of choice plants. The plants may be potted at any time of the year, taking care not to damage the bulbs or roots, and remove as much of the old soil as possible. The soil should be composed of loam, leaf mould, sand, and well-rotted manure in equal proportions; give the pots liberal drainage. While they are growing freely they should have plenty of water and liquid manure twice a week. They should be syringed twice a day. The temperature of the house during winter should not fall below 70°, and they should have a good share of sunshine. If wanted to flower during the winter months, water should be used sparingly from August to October. The bulbs should be disturbed as little as possible, re-potting when necessary, without division. Side shoots may be taken off at any time and potted in small pots, and, if well managed, they will flower in a year. The green fly and thrips are apt to trouble them; they should then be sponged off or got rid of by smoking every alternate day for a week. The three species are *E. grandiflora*, the largest and best, *E. Amazonica*, and *E. candida*, a small flowering species, but very beautiful. They all require the same general treatment. This plant was first introduced in 1864.

Eucodonia. A genus of Mexican plants separated from *Achimenes*. The species grown for its flowers was also called *Mandirola lanata.*

Eucomis. From *eukomes*, beautiful-haired; referring to the tufted crown of the flower-spike. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus of coarse-growing bulbs from the Cape of Good Hope, requiring green-house treatment, as they rest in summer. *E. bifolia*, one of the species, has only two leaves, lying flat on the ground, and a short raceme of pale green flowers. The only merit of the species is in the fragrance of the flowers. They grow with the most ordinary treatment, and are propagated by offsets. Introduced in 1774.

Eucrosia. From *eu*, beautiful, and *krossos*, a fringe; referring to the cup above the insertion of the stamens. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A genus of green-house bulbs from South America, mostly from the western declivity of the Peruvian Andes. *E. bicolor*, the only species, has bright vermilion flowers, with a purple stripe on the outside of the petals. They are borne in a terminal cluster on a scape about one foot high. They should be grown in a warm green-house. In winter they require perfect rest. Propagated by offsets. Introduced in 1816.

Eugenia. Rose Apple. Named after *Prince Eugene* of Saxony. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myrtaceæ.*

A genus of handsome shrubs, grown as fruit trees in the East Indies, but grown in English hot-houses for their splendid white flowers, that are produced freely. Propagated by cuttings of the ripe wood, which strike freely. Recent botanists place here *E. Pimenta*, which produces the Allspice of commerce. See *Pimenta.*

Eulalia. Derivation of name unknown. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

We are indebted to the American Agriculturist for the following history and description of this genus: "One of the most beautiful of ornamental grasses is the variegated *Eulalia Japonica*, which was sent from Japan several years ago by Mr. Thomas Hogg. It was illustrated in 'Hearth and Home' in 1871, and a year or two later was placed in the trade. It is a robust perennial grass, forming, when well established, large clumps, with firm, but graceful leaves, which are marked with alternate stripes of creamy-white and green, much after the manner of the old 'Ribbon or Striped Grass' of the gardens, and presenting quite as much variety in the striping.

EUL

This is taller and more erect than that, and the leaves are longer and more robust. The flower stalks appear in September, and the plant at this time is from four to six feet high. The flower panicles are at first brownish, with erect branches, and not at all showy, but as the flowers open, the branches of the panicle curve over gracefully in a one-sided manner, and bear a strong resemblance in form to what is known as a 'Prince of Wales' feather;' each of the individual flowers, which are very numerous upon each branch of the cluster, has at its base a tuft of long silky hairs, and these contribute greatly to the feathery lightness of the whole. When Mr. Hogg sent this, it was accompanied by another variety of the same grass, which did not survive the effects of the journey. Upon a second visit to Japan, he procured other plants of this last variety, which reached this country in good condition. This variety, which it is proposed to call *Eulalia Japonica*, var. *Zebrina*, the 'Zebra-striped Eulalia,' or Zebra Grass, in all that relates to form, habit, and its flowers, is quite like the other, but differs most essentially in the manner of its variegation. In the older variety the leaves, according to the usual manner of variegation in grasses, have the markings run lengthwise of the leaf, while in this Zebrina variety they run *crosswise*. The leaves present alternate bands of green and cream-white, of varying width, but with the colors quite well defined, and producing a most singular effect. Japan is remarkable for the great number of plants with variegated foliage that it has contributed to our collections, but we have not seen any variegation that interested us so much as this peculiar grass. We have seen but one other plant with its variegation so singularly disposed, and that was also from the same country. In the quaint little garden attached to the Japanese Bazar at the Centennial Exhibition was a Bulrush, (*Scirpus*,) the cylindrical stems of which were marked transversely, though the markings were much less positive than in the grass in question. Aside from the ornamental effect of its peculiar transverse markings, this variety has great interest for us in a physiological or pathological point of view. It is claimed by some that all variegation of foliage, or at least that in which the green of the leaf is changed to white or yellow, is an indication of disease, and this view is strongly maintained in spite of the numerous instances in which the variegated plants are more vigorous and hardy than typical plain green ones of the same species. To those who hold this view—that variegation is due to disease—this Zebrina variety of Eulalia presents a difficult problem. As the circulation of the juices of the leaf must take place in a lengthwise direction, the nutriment for each green portion of the leaf must pass through one of the colored sections, and those who regard these white, or whitish, bands as marks of disease, will be puzzled to account for the occurrence of green sections of the leaf which, though placed directly between two 'diseased' portions, remain in perfect health throughout the whole season of growth." The Eulalias are perfectly hardy in this latitude, and are valuable acquisitions to the garden, not only for the grace and elegance of the foliage, but for the flowers as "dried grasses." They keep for years, presenting somewhat the appearance of an ostrich feather. Propagated by division or by seeds, which, however, do not produce variegated leaves.

EUP

Euonymus. Burning Bush. From *eu*, well, and *onoma*, a name; literally, of good repute. *Linn. Pentandria-Monogynia.* Nat. Ord. *Celastraceæ.*

An extensive genus of low-growing trees and shrubs, mostly of an ornamental character. *E. atropurpureus*, a native species, is a valuable shrub for the border, on account of its handsome foliage, its abundance of purple flowers, and its copious crimson fruit in autumn. This species is what is commonly called Burning Bush. It grows freely in almost any soil or situation, preferring a moist one. Japan has furnished several species with ornamental foliage, that are among our most useful plants for single specimens, for baskets, or window gardens. *E. radicans variegata* has leaves of green and white, is a rapid grower, and hardy south of New York. It is readily increased by cuttings. The Japan species are evergreen. They were introduced in 1804.

Eupatorium. Named after *Mithridates Eupater*, King of Pontus, who discovered one of the species to be an antidote against poison. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

An extensive genus, consisting for the most part of native hardy herbaceous plants. A number of species are grown in the green-house for their white flowers, which are produced freely in winter. Of our native kinds, *E. ageratoides*, White Snake-root, is the most valuable as a flowering plant. The flowers are pure white, borne in terminal clusters or heads. The plant grows about four feet high, is very branching, and prefers a thick shade. It flowers late in August, and is very showy for nearly a month. *E. perfoliatum*, Bone-set, has, outside of the "regular practice," considerable reputation as a tonic stimulant, and is often administered in the form of a tea, made from the leaves, in cases of intermittent fevers. They are readily increased by root division or from seeds.

Euphorbia. Named after *Euphorbus*, physician to the King of Mauritania. *Linn. Dodecandria-Triqynia.* Nat. Ord. *Euphorbiaceæ.*

This is an extensive and variable genus, including species with the aspect of trees or large shrubs, and through every gradation, downward to the humblest annual weeds, all of them remarkable for an acrid milky juice. Notwithstanding the extent and variety of the genus, there are comparatively few of its members in cultivation; the principal of them being *E. splendens*, *E. jacquiniflora*, (*fulgens* or *prunifolia*,) and *Bojeri*. These do best in the hot-house, and are well deserving attention for their rich red or crimson flowers, and amply repay the little trouble occasioned. These species are all much improved by frequent stopping, as it induces a more dense habit, and consequently a greater display of flowers. It is worthy of remark that the first flowers that expand in each season on *E. splendens* are in pairs, but those which follow are each time increased in duplicate ratio, so that those which open last are commonly as many as eight together. The other perennial species require to be treated in the manner of Cacti, and the remainder respectively as they belong to the hardy or tender classes of annual, biennial, or perennial plants. *E. corollata*, a native species, is a free-flowering plant, and valuable for florists' use, or for cut-flowers. They are small, greenish white, in general appearance like the Forget-me-not. This species is readily propagated by root division. The French substitute the seeds of *E. lathyrus* for the English

capers, which, if taken in quantity, prove highly deleterious. For *E. Poinsettei*, see *Poinsettia pulcherrima*.

Eurya. From *eurys*, large; referring to the flowers. *Linn. Polygamia-Monœcia.* Nat. Ord. *Ternstromiaceæ.*

This genus is composed of evergreen shrubs, or low-growing trees, found in India, China, and the adjacent islands. The leaves are not unlike those of the tea-plant. The flowers are white, arranged in axillary clusters.

Eurycles. From *eurys*, broad, and *klas*, a branch; referring to the broad leaves or branch-like footstalks. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A genus of strong-growing bulbs, found in the Eastern Archipelago and in New Holland. This genus was formerly included in Pancratium, from which it is distinguished by its broad, nearly heart-shaped leaves, and its flowers with a long cylindrical tube, with equal and regular petals. The flowers are borne in umbels, and are pure white. They require to be grown in the green-house, and must have complete rest during winter. Planted out in May, they flower finely. Propagated by suckers, which should be taken off when a new growth commences in spring. Introduced in 1821.

Eutaxia. From *eutaxia*, modesty; referring to the delicate aspect of the flowers. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A genus of very pretty green-house shrubs, natives of Western Australia. They are chiefly low-growing and bushy, with small heath-like leaves, flowers pea-shaped, produced in small axillary clusters. Color, pure yellow. *E. myrtifolia* is a popular green-house plant, whose slender stems are often seen thickly covered in the spring and summer months with its bright yellow flowers. The species are increased by cuttings. Introduced in 1803.

Euterpe. After *Euterpe*, one of the Nine Muses. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A genus of Palms of extremely graceful habit, natives of South America and the West Indies. With the exception of *E. montana*, from the latter country, all are too tall growing for the green-house. This species attains a height of about twenty feet, and has the base of the stem much swollen or bulged out. The leaf bud and the central portion of the upper stem are cooked as a vegetable or pickled by the natives, and highly esteemed. Propagated by seed.

Eutoca. From *eutokos*, fruitful; referring to the abundance of seeds. *Linn. Pentandria-Monogynia.* Nat. Ord. *Hydrophyllaceæ.*

A genus of hardy annuals, with blue, pink, or lilac flowers, mostly from California. A few species are found in Virginia, and South and West, but are not of sufficient merit to warrant their introduction into the garden. Those from California are free-flowering, and of the easiest culture. The seed should be sown as early in spring as possible.

Evening Glory. See *Ipomœa.*

Evening Primrose. See *Œnothera.*

Everlasting Pea. See *Lathyrus latifolius.*

Evolvulus. From *evolvo*, to roll out, the opposite to Convolvulus; referring to the plant not twining. *Linn. Pentandria-Digynia.* Nat. Ord. *Convolvulaceæ.*

An extensive genus of annuals and perennials, mostly from the East Indies and South America, a few species being found in Florida. The

flowers of these plants are extremely beautiful, mostly of a large size, and of various shades of blue and white. The annuals should be started in a hot-bed or green-house, and planted out as soon as the weather will permit, or they may be grown in pots and trained on a balloon frame. The perennials should be kept dry and dormant through the winter, and started in a brisk heat in spring. During summer they may be grown in the green-house, or in pots, and trained on a trellis, or other suitable place for a climbing plant. The perennials may be increased by cuttings of young shoots. First introduced in 1817.

Exochorda. From *exo*, out of, and *chorda*, a cord; referring to the cords by which the seeds are suspended. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Rosaceæ.*

This is a beautiful hardy shrub from China, introduced a few years since, and as yet comparatively little known. It is in substance described in the late edition of the Treasury of Botany as being remarkable for the structure of its fruits, which consist of five small compressed bony carpels adhering round a central axis in a star-like manner. From the axis or growing point stand five erect placentary cords, which enter the carpels on their inner face near the top, suspending from the apex two thin seeds. These cords remain after the carpels have fallen, and have suggested the name of the genus. The only species, *E. grandiflora*, is a smooth shrub or dwarf tree, with alternate nearly lance-shaped entire leaves, the stems terminated by racemes of handsome white flowers, which appear in the spring, and are about an inch in diameter. They have a bell-shaped calyx with a five-parted border, five rounded petals, and fifteen to twenty stamens. The plant is also known as *Spiræa grandiflora*. It is a beautiful, tall-growing shrub, worthy of a place on the lawn and in the shrubbery. It is still a rare plant in the United States, chiefly because it is difficult to propagate, and in consequence is not easy to get. It is propagated from cuttings.

Exogonium. From *exo*, external; referring to the exserted stamens. *Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ.*

The few species that are included in this genus are closely allied to, and very nearly resemble the tuberous-rooted *Ipomœas*. They are desirable climbers, flowering freely nearly the whole summer. During winter the tubers should be kept dry and free from frost. *E. purga*, a Mexican species, has beautiful salver-shaped, purplish flowers, and furnishes the true Jalap tubers of commerce. These are roundish, of variable size, the largest being about as large as an orange, and of a dark color. They owe their well-known purgative properties to their resinous ingredients. They can be rapidly increased by cuttings, or by division of tubers in spring, like the Dahlia.

Exostemma. From *exo*, external, and *stemma*, a crown; referring to the exserted stamens. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A genus of tropical trees or shrubs, valued more for the medicinal properties they possess, than for the beauty of their foliage or flowers. They are natives of the West Indies. One of the species, *E. caribæum*, has become naturalized in Southern Florida. The bark possesses the same active principle as that of the *Cinchona.*

F.

FAB

Fabiana. Named after *F. Fabiano*, a Spaniard. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

A small genus of half-hardy evergreen, heath-like shrubs. *F. imbricata*, the only species, is a neat evergreen shrub of compact habit, and densely covered, during the spring months, with pure white tubular flowers. Propagated by seeds or from cuttings.

Fadyenia. Named after *Dr. Fadyen*, author of a Flora of Jamaica. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

F. prolifera, the only species, is a curious little Fern, a native of the West Indies. It grows but a few inches in height; the fronds have netted veins, and are remarkable for the large size of the sori. It is occasionally met in choice collections. Propagated by spores, which answer to seeds.

Fagelia. Named after *Fagel*, a botanist. *Linn. Diadelphia-Tetragynia.* Nat. Ord. *Fabaceæ.*

A genus of green-house evergreen, twining, herbaceous plants, found in South Africa and Abyssinia. The leaves somewhat resemble those of *Phaseolus*, but are smaller. Their flowers are pea-shaped, yellow, and borne on long, axillary racemes. Young plants are obtained from seeds.

Fagopyrum. Buckwheat. From *phago*, to eat, and *pyros*, wheat; seed eatable. *Linn. Octandria-Trigynia.* Nat. Ord. *Polygoniaceæ.*

F. cymosum, the only species, is our common Buckwheat, which see.

Fagus. The Beech. From *phago*, to eat; in early ages the nuts of the Beech-tree were used as food. *Linn. Monœcia-Polyandria.* Nat. Ord. *Corylaceæ.*

A small genus of hardy deciduous trees, remarkable for their graceful and symmetrical habit of growth, their great size and beauty, which renders them objects of admiration, whether in their native wood, or transplanted on the lawn for shade. There are but two species in our forests. *F. sylvestris*, White Beech, is one of the tallest and most majestic of our forest trees. It grows most abundantly in the Middle and Western States, though common east of the Alleghanies, attaining its greatest size on the banks of the Ohio, where the trees are frequently found one hundred feet high, with a diameter from three to four feet. This species is more slender than the Red Beech, but its foliage is superb, and its general appearance magnificent. The sexes are borne on different branches of the same tree. The male flowers are borne in pendulous, globular heads, the female flowers are small, and of a greenish color. The Red Beech, *F. ferruginea*, is more exclusively confined to the Northern States. It is so abundant as often to constitute extensive forests, the finest of which grow on fertile, level, or gently sloping lands, with a humid surface. The Red Beech equals the white species in diameter, but not in height; and as it branches nearer the earth, and is more numerously divided, it has a more massive summit and the appearance of more tufted foliage. Its leaves are equally brilliant, a little larger and thicker, and are more serrated. The European Beech, *F. sylvatica*, is almost identical with the latter species. The Weeping

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Beech, *F. sylvatica pendula*, is one of the most curious and beautiful of lawn trees. The original tree stands in the park of Baron de Mau, at Beersel, Belgium. "The trunk is three and a half to four feet in diameter, and grows in a twisted form to a height of twelve to fifteen feet, with an appearance of being pressed down by an immense weight. The branches cover an area nearly a hundred feet in diameter. Its history is curious. Some sixty years ago the baron's gardener was planting an avenue of Beech trees, and the baron, observing a very crooked specimen, directed to have it thrown out; but the gardener planted it in a corner of the grounds little visited, where it grew to be one of the most beautiful and singular freaks of sylvan nature."—*Scott.* The Purple-Leaved Beech, *F. purpurea*, now so popular for lawn decoration, is a sport from the common White Beech, found in a German forest. The Copper-colored Beech, *F. cuprea*, is a sub-variety of the Purple Beech. The Fern and Cut-leaved Beeches are very ornamental varieties, the leaves resembling the fronds of a Fern. There are varieties with variegated foliage. They are all varieties of *F. sylvatica.*

Fairy Lily. See *Zephyranthes.*

False Acacia. The common Yellow Locust, *Robinia pseud-acacia.*

False Asphodel. A popular name of the genus *Tofieldia*, small flowering Liliaceous plants.

False Dragon-head. See *Physostegia.*

False Fox-Glove. See *Gerardia flava.*

False Hellebore. See *Veratrum.*

False Honeysuckle. A popular name of our native *Azaleas.*

False Indigo. See *Amorpha.*

False Mistletoe. American Mistletoe, *Phoradendron flavescens.*

False Red Top. A popular name of *Poa serotina*, because of its resemblance to *Agrostis vulgaris*, the true Red Top Grass.

False Solomon's Seal. See *Smilacina.*

False Spikenard. See *Smilacina racemosa.*

Fan Palm. See *Corypha.*

Farkle-berry. A local name for one of the Cranberries, *Vaccinium arboreum.*

Feather Grass. See *Stipa.*

Fœa. In honor of *M. Fée*, Professor of Botany at Strasburg. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of interesting little Ferns found in Guiana and the West Indies. They require to be grown in a very warm, moist atmosphere.

Fenzlia. Named in honor of *Dr. Fenzl*, author of a monograph on *Alsinaceæ. Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

A genus of beautiful dwarf California hardy annuals. They bear a profusion of delicate, rosy-tinted flowers, with a yellow throat, surrounded with dark-colored dots. It is very dwarf and closely tufted, keeping in flower the whole summer, making it desirable for small beds or edgings. It is also very pretty for window gardens. It is also known as *Gilia dianthoides.*

Ferns consist of three orders of flowerless plants. Some of the species are magnificent, with trunks upward of fifty feet high. Some are climbing,

some creeping, others bushy and dwarf, and all are graceful and interesting. Many of the genera are described in their proper order.

Ferraria. Named after *Ferrari*, an Italian botanist. *Linn. Monadelphia-Monogynia.* Nat. Ord. *Iridaceæ.*

A genus of dwarf bulbs from the Cape of Good Hope, producing very curious, oddly-colored flowers, perhaps more singular than beautiful. They are of easy culture, requiring to be kept dry during winter. They should be started in the green-house in February, in small pots. As soon as they commence growth, give them plenty of air, sunlight, and water, and they will come into flower in April. They will grow finely in a col frame if carefully protected from water during winter. They are increased freely by offsets. Introduced in 1800.

Ferula. Giant Fennel. From *ferio*, to strike; stems used as rods. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

A genus of coarse-growing, herbaceous perennials from the Mediterranean and Persian regions. They are of but little interest, except *F. Persica*, the juice of which furnishes very much of the Asafœtida of commerce.

Fescue Grass. See *Festuca.*

Festuca. A genus of grasses, containing some of the best pasture grasses. *F. glauca* is a very handsome ornamental grass, which, though hardy, is very suitable for the green-house and the sitting-room.

Fetid Horehound. See *Ballota.*

Fever Bush. A local name of the *Lindera*; given for the supposed medicinal properties of the shrub.

Feverfew. See *Pyrethrum.*

Ficaria. From *ficus*, a fig; in reference to the fig-shaped little tubers of the root. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

A hardy herbaceous perennial, with bright yellow flowers, closely resembling the Ranunculus, to which it is allied, the only difference being in the shape of the petals. It is one of the earliest spring flowers in the English woods or waste places.

Ficus. Fig-tree. The Fig-tree has nearly the same name in all the European languages, and is supposed to be derived from the Hebrew name *feg. Linn. Polygamia-Dicœcia.* Nat. Ord. *Moraceæ.*

A genus of trees, some of which require to be grown in the hot-house. It contains several valuable species, especially the India Rubber tree, (*F. elastica,*) and the Banyan tree, (*F. Indica;*) the foliage of all of them is very imposing, and their culture is of the easiest description, requiring heat and plenty of water in their growing season. *F. elastica*, if cultivated in a humid atmosphere, such as that of an Orchid-house, will emit roots from its stem and branches, and attach itself to any contiguous object, such as a wall, in the manner of an epiphyte. This is the India Rubber tree of commerce. It is much valued as a decorative plant for rooms. This species grows to an immense size in Central and South America. *F. Carica*, the cultivated Fig, is supposed to be a native of Caria in Asia. It has, however, been so long under cultivation throughout Southern Europe that its nativity is lost sight of. The fruit can be grown here without artificial heat, an ordinary pit alone being sufficient protection in winter; or the plants can be laid down and covered up with six inches of soil in November and uncovered in April, and will thus withstand our severest Northern winters. The Fig is generally hardy south of Washington. Propagated by cuttings or layers.

Fiddle-Wood. See *Citharexylum.*

Fig Marigold. See *Mesembryanthemum.*

Filbert. See *Corylus.*

Fir. See *Abies.*

Fire Cracker Plant. See *Cuphea.*

Fire Pink. A local name of *Silene Virginica.*

Fire Tree. See *Nuytsia.*

Fire-Weed. A name given to *Erechites hieracifolia*, because of its appearance on new grounds, when brush has been burned. It is a coarse, worthless weed, though not apt to be troublesome.

Fish-Tail Palm. See *Caryota.*

Fittonia. See *Gymnostachyum.*

Five-finger. See *Potentilla.*

Flame Flower. One of the popular names of *Tritoma.*

Flame Lily. See *Pyrolirion.*

Flame Tree. See *Nuytsia.*

Flame Tree, or Tree of Fire. See *Brachychiton.*

Flamingo Plant. See *Anthurium.*

Flax. See *Linum.*

Fleabane. See *Erigeron.*

Fleur-de-Luce. See *Iris.*

Florida Bean. See *Entada.*

Florida Moss. See *Tillandsia.*

Flower of the Holy Spirit. See *Peristeria.*

Flowering Rush. See *Butomus.*

Flower-de-Luce. See *Iris.*

Flowering Fern. See *Osmunda.*

Fool's Parsley. See *Æthusa.*

Forget-me-not. See *Myosotis.*

Forsythia. In honor of *Mr. Forsyth*, royal gardener at Kensington, Eng. *Linn. Diandria-Monogynia.* Nat. Ord. *Oleaceæ.*

A small genus of ornamental deciduous, hardy shrubs, introduced from the north of China in 1845. *F. viridissima* is one of the earliest of spring flowering shrubs, being completely covered in early spring with tufts of rather large, pendulous, bright yellow flowers, which grow two or three together from all parts of the rod-like branches. It is easily increased by cuttings or layers.

Fourcroya. Named after *M. Fourcroy*, a celebrated chemist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A genus closely allied to *Agave.* There are but three species, all natives of Mexico. *F. longæva* (long lived) throws up a magnificent flower stem forty feet high. It is branching and pyramidal, like the Yucca, though more graceful. The lower branches of the terminal pyramid are from ten to twelve feet long, and are covered with innumerable white flowers. From their great size they are rarely met in collections.

Four O'Clock. See *Mirabilis.*

Fox Glove. See *Digitalis.*

Fragaria. The Strawberry. From *fragrans*, fragrant; in reference to the perfumed fruit. *Linn. Icosandria-Monogynia.* Nat. Ord. *Rosaceæ.*

According to Sir Joseph Banks and others, the common name of Strawberry was given on account of straw having been laid between the plants to prevent the fruit from getting soiled in wet weather. There are several species of Strawberries, the principal of which are, *F. Virginiana*, the Virginian or Scarlet, the well-known native species; *F. grandiflora*, the Pine; *F. Chiliensis*, the Chilian; *F. vesca*, the Wood and Alpine; *F. elatior*, the Hautbois; *F. viridis*, the green; *F. Indica*, the Indian, not edible, but a

pretty plant for hanging pots and baskets, its berries being very attractive. Like all the others, it is propagated by runners as well as seed. Previous to 1629, the date assigned to the introduction of the Scarlet Strawberry from Virginia, the Wood Strawberry is supposed to have been the kind generally gathered for sale in England. The varieties now grown are almost innumerable, especially in the United States, and they are increasing every year. The improvements effected among us, in quality, size, and productiveness, are very remarkable indeed. Berries have been exhibited in New York that measured fully twelve inches in circumference.

Franciscea. Named in honor of *Francis*, Emperor of Austria. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

A genus of green-house evergreen shrubs, natives of Brazil. There are several in cultivation, most of them having very showy salver-shaped purple flowers. The roots, and to some extent the leaves, are employed in medicine. The tincture is bitter, purgative, and emetic, and is poisonous in large doses. From its peculiar properties it is called by the Portuguese Vegetable Mercury.

Francoa. Named after *F. Franco*, a Spaniard. *Linn. Octandria-Tetragynia.* Nat. Ord. *Francoaceæ.*

A small genus of tender herbaceous perennials, natives of Chili. They are found to succeed best when treated as tender annuals, as they can only be increased by seeds, which, if sown early in a hot-bed, make good flowering plants for autumn. The flowers are produced on long spikes, and are quite showy. Colors white or purple.

Frankenia. Sea Heath. Named after *John Frankenius*, a Swedish botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Frankeniaceæ.*

A small genus of hardy and half-hardy evergreen trailers, growing in marshy places throughout Europe and the Canary Islands. Though very pretty, they have received but little attention from florists. Flowers pink, produced in axillary clusters, very small. Propagated by division.

Frasera. Named after *John Fraser*, an indefatigable collector in this country toward the close of the last century. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Gentianaceæ.*

F. Carolinensis, the only species, is a tall-growing, showy herbaceous plant. The flowers are about one inch in diameter, of light greenish-yellow color, marked with small brown-purple dots. It is commonly known as American Columbo, and is common in Southwest New York to Wisconsin and southward.

Fraxinella. See *Dictamnus.*

Fraxinus. The Ash. From *phraxis*, a separation; in reference to the facility with which the wood splits. *Linn. Polygamia-Dioecia.* Nat. Ord. *Oleaceæ.*

This genus includes some of the most common forest trees throughout the United States. They are also common in Europe, Asia, and in the North of Africa. The more common and important of the native species are the following: The White Ash, *F. Americana*, is a beautiful tree, with trunk perfectly straight, and usually undivided to the height of thirty to forty feet. In the forest the tree often attains a height of one hundred feet. Solitary trees are often very beautiful, being symmetrical and globular, with dense foliage of a dull bluish-

green color. This species delights in a warm, rich soil, and is rarely found in its natural state in any other. The timber of this species is valuable in the mechanic arts, where strength and durability are required. The Black Ash, *F. sambucifolia*, is a tree of medium size, usually found in wet or swampy situations. It is of but little value as an ornamental tree, and the timber has little value except to split into rails for fencing. The other native species are of no special interest. The English Ash, *F. excelsior*, is almost identical with our White Ash. From it several varieties have originated; one of weeping habit, *F. excelsior pendula*, a very beautiful and desirable tree for the lawn. Some of the varieties with golden, and some with variegated foliage, are being extensively planted, and are strongly recommended for suburban grounds.

Fremontia. Named in honor of *Major-General John C. Fremont*, who discovered it in the northern part of the Sierra Nevada. *Linn. Monadelphia-Pentandria.* Nat. Ord. *Sterculiaceæ.*

F. Californica, the only species, is a deciduous shrub from four to ten feet high, somewhat resembling the ordinary Fig-tree. The flowers are very handsome, bright yellow, bell-shaped, and are produced on short, spur-like branches. Propagated by cuttings or from seed. Introduced in 1851.

French Honeysuckle. See *Hedysarum.*

French Marigold. See *Tagetes.*

French Mulberry. See *Callicarpa Americana.*

Fringe Tree. See *Chionanthus.*

Fritillaria. From *fritillus*, a chess-board; referring to the checkered flowers of some species. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Showy bulbs for the border, mostly attaining a height of from two to three feet, though *F. meleagris* and its varieties are dwarf. This species, and one or two others like it, have had much attention paid them by the continental florists, who have succeeded in obtaining many beautiful varieties by seed, and now these flowers occupy a prominent place in their catalogues. They delight in very rich soil, frequently dug and well pulverized previous to planting. The bulbs may be placed in the ground either in autumn or early spring, covering them with about three inches of earth. In the blooming season, should the weather prove dry, the ground must be frequently well soaked with water, that the growth may be sufficiently vigorous, or the flowers of the following season will be deficient. When the stems begin to decay, the bulbs should be taken up, but not dried to any extent, it being far preferable to preserve them till the following planting season in sand or light and partially dried earth. *F. imperialis* is the well-known Crown Imperial, a native of Persia, of which there are several varieties. They will be greatly benefited by mulching with leaves to the depth of six inches, just before the ground freezes up. They can remain a number of years without taking up. Propagated by division of the bulbs.

Frog's Bit. See *Limnobium.*

Fuchsia. Named after *Leonard Fuchs*, a celebrated German botanist. *Linn. Octandria-Monogynia.* Nat. Ord. *Onagraceæ.*

The best history we have of this interesting genus is from the pen of the Rev. C. A. Johns, in the "Treasury of Botany." He says: "A plausible story has often been printed, which attributes the introduction of the *Fuchsia* into England to a sailor, whose wife or mother was

induced to sell it to Mr. Lee, a nurseryman, who, in the course of the following summer, made a profit of 300 guineas by the transaction. This is said to have happened about the close of the last century. It was, however, a hundred years before this time that a monk named Father Plumier discovered the first specimen of the family, which he afterward dedicated to the memory of Leonard Fuchs. This first species was named *Fuchsia triphylla flore coccinea*, and a description of it is to be found in the works of Plumier, published in 1703. With the exception of *F. excorticata* and *F. procumbens*, which are natives of New Zealand, all the species belong to the central and southern regions of America, in shady, moist places, in forests, or on lofty mountains of Mexico, Peru, and Chili. The number of distinct species at present known is more than fifty, which have been introduced from time to time since the beginning of the present century; but the varieties most prized by florists date only from the year 1837, when *F. fulgens* was introduced. The introduction of this species, and soon afterward of *F. corymbiflora*, *cordifolia*, and *serratifolia*, gave to horticulturists the opportunity of hybridizing these long-flowered species with the globose kinds, and the result has been the annual appearance of varieties which, from a garden point of view, have surpassed their predecessors, to be themselves eclipsed in their turn." The cultivation of the Fuchsia is quite simple. Stock plants should be started in the green-house in November or December, and cuttings taken off as soon as large enough, which will be in ten days or two weeks. In an ordinary propagating house, they will be sufficiently rooted in two weeks to pot off; after which the growth is rapid, if given the four essential elements, viz., light, air, heat, and water. They require to be re-potted often, never allowing them to get pot-bound if you wish large show plants. By training up the leading shoot, and keeping it tied to a straight stick, the plant will throw out side shoots in the perfect order required for a graceful, symmetrical outline. Plants carefully grown on in this manner will, by the first of July, fill a twelve-inch pot, which, if placed in a shady situation, and liberally watered with liquid manure, will make a plant fully six feet high by autumn, and all the summer be completely covered with flowers. During our hot summer months, moss two inches thick, as a mulching, on top of the pots, will be found to be of great advantage.

Fumaria. Fumitory. From *fumos*, smoke; referring to the disagreeable smell of the plant. *Linn. Diadelphia-Digynia.* Nat. Ord. *Fumariaceæ.*

A genus of hardy annuals, mostly mere weeds. One or two, however, are very pretty climbers, ornamental, when grown along hedge-rows, for their delicate foliage, and small, pinkish white flowers.

Funkia. Day Lily. Named in honor of *Henry Funk*, a German Cryptogamist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Biliaceæ.*

A handsome genus of hardy herbaceous plants, with bundled fibrous roots, from Japan. It is nearly allied to *Hemerocallis*, and some of the species first introduced were included in that genus, which has caused considerable confusion in names. They are remarkable for their neat habit, the fine character of their foliage, and the delicious fragrance of the flowers of some of the species. *F. albo-marginata* and *F. Sieboldti* have beautifully variegated foliage, green and white. As border plants they are very showy and attractive, and to mix with cut flowers for vases the foliage is invaluable. *F. subcordata*, or *Japonica*, the well-known white Day Lily, is the largest growing of the species. In rich soils they will, in a short time, make immense clumps, that flower freely in August. This species does best in partial shade. They are readily increased by division of roots, which should be done in early spring. First introduced in 1790.

Fungi. Extensive groups of singular plants, known as blights, blasts, mildews, and mushrooms.

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Gagea. Named after *Sir Thomas Gage*, a botanical amateur. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus of hardy little yellow-flowering bulbs, allied to the Tulip. The species are natives of Europe, temperate Asia, and northern Africa. The flowers, which are large for the size of the plant, are produced in umbels on stems not more than four inches high. They flower about the same time as the Crocus, and should occupy similar places in the garden. Propagated by offsets. Introduced in 1759.

Gaillardia. Named after *M. Gaillard de Marentonneau*, a French patron of botany. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Asteraceæ.*

A genus of beautiful half-hardy annuals, natives of South Carolina and southward. They are exceedingly showy, and well adapted for garden decoration. The seed germinates slowly, and in order to get plants to flower the whole summer it should be sown in the green-house in February. The plants may be put out in the open border when all danger from frost is over. Cuttings may be made in the fall and grown on in the green-house during the winter. *G. Richardsoni*, a species of late introduction, is a hardy perennial, propagated by root division.

Galanthus. Snow-drop. From *gala*, milk, and *anthos*, flower; referring to the color of the flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

G. nivalis, the common Snow-drop, for its poetical associations as the ever-welcome harbinger of spring, is universally cultivated, and by potting and very gentle forcing may be made an interesting ornament to the green-house in mid-winter. It is perfectly hardy, however. Loudon remarks: "It is rather singular, and also to be regretted, that no variations or hybrids have been produced from this early

and pretty little flower." By way of episode, we may mention that there are but two species of the genus and one variety, but it is probable that a cross might be obtained between it and the allied genus *Leucojum*, or, indeed, other genera of the same order, the great difficulty being, however, to have the different species in flower at the same time. The precocity of the Snow-drop putting it out of the question in a natural manner, it would be necessary to retard the latter till the blooming season of the genus be selected. Natives of Great Britain.

Galathea cœlestis. Blue Daisy. Derivation of name not given. Belongs to the natural order *Asteraceæ*.

This is a neat green-house plant, somewhat resembling the Gazania in foliage and shape of flower, but having petals of a deep blue with yellow disk. As it blooms profusely, and the color is a rare and beautiful shade of blue, which contrasts finely with the golden yellow disk, it is much valued as an ingredient in winter bouquets. It is a neat plant, and the peculiar color (mazarine blue) is very unusual in this class of plants. Propagated by cuttings.

Galaxia. From *galaktiao*, to abound in milk; referring to the juice. *Linn. Monadelphia-Monogynia.* Nat. Ord. *Iridaceæ*.

A genus of dwarf, tender bulbs from the Cape of Good Hope. The flower stems are short, with a terminal cluster of narrow leaves, and handsome funnel-shaped flowers. Most of the species are yellow, others purple. The bulbs may be planted out in early spring, like the Gladiolus, and given the same treatment during summer. They may be left in the ground during winter, if protected from frost. Increased by offsets. Introduced in 1799.

Galeandra. From *galea*, a helmet, and *aner*, a stamen; referring to the crested male organ on the top of the column. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ*.

A small genus of terrestrial Orchids, with pink, purple, or yellow flowers. They are from Central and South America, and require the same treatment as is recommended for the *Bletia*. Introduced in 1840.

Galium. Bedstraw, Cleavers. From *gala*, milk; referring to the flowers of *G. verum* having been used to curdle milk. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Galiaceæ*.

A genus of interesting herbs, natives of Europe, but extensively naturalized in the United States. *G. aparine*, vulgarly known as Goose-Grass, has a great reputation in the eclectic practice of medicine as a cure for gravel in the bladder, and is considered by them invaluable as a diuretic.

Gamboge. A gum resin that is furnished by a number of trees in the East Indies. It was at one time chiefly obtained from *Xanthochymus*, a native of Ceylon. See *Garcinia* and *Nauclea*.

Garcinia. Mangosteen. Named after *Dr. Garcin*, an Eastern traveler. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Clusiaceæ*.

A genus of tropical trees of medium size, highly esteemed for their delicious fruit, and for the valuable gums they furnish. The fruit of *G. Mangostana* is one of the most delicious that grows, and the tree upon which it is produced is one of the most graceful and beautiful anywhere to be met with. It is a native of Sumatra and the islands of the Eastern Archipelago. The stem rises to the height of about twenty feet; the branches come out in regular

order, and give the head of the tree the form of a parabola; the leaves are about eight inches long, and four broad at the middle, of a beautiful green on the upper side, and a fine olive on the under. The flower resembles that of a single rose, with some dark red petals. The fruit is round, about the size of an ordinary orange. The shell of the fruit, which is at first green, but changes to brown, marked with yellow spots, has some resemblance to that of the Pomegranate, but is thicker and softer, and the contents are more juicy. The flavor of the pulp is said to be that of the finest Grape and Strawberry united; but those who have tasted the fruit in perfection, and attempted to convey to others some idea of the impression that it had made on them, are not agreed as to what it resembles. Abel says that "he and his companions were anxious to carry with them some precise expression of its flavor; but after satisfying themselves that it partook of the Pine-apple and the Peach, they were obliged to confess that it had many other equally good, but utterly inexpressible flavors." The species may be grown and ripen fruit in the hot-house. They will bear fruit in two years from seed. Some of the species yield a gum resin, known as Gamboge, though not the true sort, but it is said to be nearly as good.

Gardener's Garters. A local name for *Arundo Donax versicolor*; also *Phalaris arundinacea*.

Gardenia. Named in compliment to *Alexander Garden, M.D.*, of Charleston, South Carolina, a correspondent of Ellis and Linnæus. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ*.

A genus of splendid green-house shrubs, remarkable for the size, number, and fragrance of their flowers, and the noble character of the plant. *G. florida* and *G. Fortunei* are natives of China. The former was introduced into the Cape of Good Hope in 1754, where it received its common name, *Cape Jasmine*. They are usually treated as green-house plants, but if kept moderately cool during winter, their season of rest, and planted out in spring, they will flower freely during the early part of the summer. They may be taken up in autumn, potted, and kept under the table in the green-house during winter. They are readily increased by cuttings made from half-ripened wood.

Gardoquia. Named after *Gardoqui*, a Spaniard, who greatly promoted the publication of the "Flora Peruviana." *Linn. Didynamia-Angiospermia.* Nat. Ord. *Lamiaceæ*.

A genus of green-house, low-growing shrubs, producing from the axils of the leaves bright scarlet or pink flowers. They thrive well with ordinary green-house culture. In order to make neat and compact plants they should be kept cut well back, or the plants will become straggling. They are readily increased by cuttings. Introduced in 1812 from Peru.

Garland Flower. See *Hedychium*.

Garlic. *Allium sativum.* This plant belongs to the same genus as the Onion and the Leek. It is a perennial, found growing wild in the southern parts of Europe. It is commonly cultivated in almost every country, and has been highly esteemed from a very early period, not only as an article of food, but as a medicine. It was introduced into the English gardens in 1548. Every part of the plant, but especially the root, has a pungent, acrimonious taste, and a peculiar offensive odor, that is far more penetrating and diffusive than that of the Onion. So power-

ful is this principle, that when Garlic is applied externally, as to the feet, the smell is said to be observed in the breath and perspiration. The common field Garlic, *Allium vineale*, was supposed to have been brought into this country by the Welsh, who planted it for early pasture. It is now completely naturalized, and in many parts of the country is quite a nuisance. *A. Canadense*, or Wild Garlic, is indigenous, and common in moist meadows. This differs from the field Garlic in having flat leaves, but is equally to be dreaded.

Gasteria. From *gaster*, a belly; alluding to the swollen base of the flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A somewhat extensive genus of succulent green-house plants, from the Cape of Good Hope, allied to the *Aloe*, which they closely resemble, and require the same treatment. The flowers of most of the species are bright scarlet or red, and very showy.

Gastrolobium. From *gaster*, belly, and *lobos*, a pod; inflated seed-pod. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

Handsome New Holland shrubs with bright yellow and orange-colored blossoms, requiring to have an airy situation in the green-house through the winter, and a shaded one out of doors in summer. Propagated by seeds or from cuttings. Introduced in 1840.

Gastronema. From *gaster*, belly, and *nema*, a filament; in reference to the filaments seen below the points of insertion. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of very pretty, but exceedingly rare bulbs, from South Africa. There are but two species, one with white flowers, the other rose. They will flower freely in the open ground in summer, if planted in early spring. When the foliage shows signs of ripening, take up the bulbs, and keep in a dry place, free from frost, during winter. Propagated by offsets. Introduced in 1816.

Gaultheria. Named after *Dr. Gaulther*, of Quebec, Canada. *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ.*

Of the several species of this genus of low evergreens, two are natives of this country, and perfectly hardy. *G. procumbens* is found throughout the Northern States, and universally known as Wintergreen. In some sections the berries are called Partridge Berries, in others Checker-berry, Deer-berry, Tea-berry, etc. Wintergreen oil is distilled from this plant.

Gaylussacia. See *Huckleberry.*

Gazania. From *gaza*, richness; in reference to the large, gaudy flowers. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Asteraceæ.*

A genus of very showy, low-growing, tender herbaceous plants, from the Cape of Good Hope. The flowers are large, yellow, or deep orange color, with almost black centers. They are very ornamental for the green-house, and are well adapted for out-of-door culture. The flowers open only in the sunshine. They are propagated readily from cuttings. Introduced in 1812.

Geissorhiza. Tile Root. From *geisson*, a tile, and *rhiza*, a root; referring to the dry coats which cover the fleshy roots, like tiles on a roof. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A small genus of South African bulbs, one species of which has been found in Abyssinia. They are all remarkable for having bulbs, or, more correctly, bulbo-tubers, covered with several crustaceous or scarious skins or tunics, which lie over each other like scales, or the tiles of a house, beginning from below. It is from this peculiarity that the plants take their English name of Tile Root. They have but four leaves, all of which spring from the root, and are narrow and bristly. The stems are simple or branched, producing one or two flowers each, resembling the Ixia, very showy, of various colors, the white, yellow, and blue predominating. They are properly green-house bulbs, but will succeed finely in a cold frame. They are increased by offsets. Introduced in 1795.

Gelasine. From *gelasinas*, a smiling dimple; referring to the flowers of these pretty bulbs. *Linn. Hexandria-Monogynia.* Nat. Ord. *Iridaceæ.*

G. azurea, the only species, is a small bulb from the Rio Grande, producing two to four beautiful blue tulip-shaped flowers on a slender stalk, about one and a half feet high. Propagated by offsets, or from seed. Seedlings flower the second year. Introduced in 1838.

Gelsemium. From *gelsemius*, an Italian name of the Jasmine; alluding to the simplicity of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Loganiaceæ.*

A small genus of climbing shrubs, with opposite lance-shaped, shining leaves, and producing axillary clusters of showy yellow flowers, very fragrant. It is indigenous to North Carolina and southward, and is popularly known as *Carolina Jasmine.* It is increased by cuttings.

Genetyllis. From *genetyllis*, protective of birth; alluding to the form and position of the flowers. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myrtaceæ.*

A small genus of green-house evergreen shrubs, having a heath-like appearance, natives of Australia. The flowers are tulip-shaped, of cream color or crimson, borne in scattered, terminal clusters. The species are remarkable for the exquisite sweetness of their foliage, which, with the half-ripe fruit, retains its fragrance for such a length of time that it might possibly be considered worth collecting for the perfumer. They are easy of cultivation. Young plants are obtained from cuttings.

Genista. From the Celtic *gen*, a small bush. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

This genus consists of upward of seventy species, inhabiting Europe, North Africa, and Western Asia. Many of the species are perfectly hardy. *G. tinctoria*, an escape from Europe, has taken possession of the dry waste places of Southern New York and New England with the persistency of a native. This species is the *English Broom.* They are all very handsome, from the profusion of their bright yellow pea-flowers, and are of the easiest culture. The green-house kinds are propagated by cuttings.

Gentiana. Gentian. Named after *Gentius*, King of Illyria, who first experienced the virtues of the plant. *Linn. Pentandria-Digynia.* Nat. Ord. *Gentianaceæ.*

A large genus of herbaceous perennials, inhabiting all parts of the world, from the regions of perpetual snow upon the summits of the mountains of Europe, to the hottest sands of South America. They are very common in many parts of this country, some growing on dry hill-sides, others in moist and swampy grounds. All the plants of this genus are pretty, and many are extremely beautiful; the flowers take in the extremes of color: pink, blue, yellow, and white are all exhibited, the predominating color however, being a beautiful blue. *G. Andrewsii*

is common in moist, rich places in the Northern States, and is a very beautiful species; the flowers are of a deep, purplish blue, striped inside, the folds whitish. *G. crinita*, Fringed Gentian, is another quite common species in New England and westward. The four lobes of the corolla are fringed at the margin, an exceptional point of beauty of this species. The Alpine species are mostly low growing, well adapted for rock-work or pot culture. The species are increased by seed, which should be sown as soon as ripe. The Fringed Gentian is partial to its native home. It rarely lives if transplanted, and coming into flower so late in the season, it is very seldom that it ripens seed. Were it readily increased it would be a very popular plant.

Geonoma. From *geonomos*, skilled in agriculture; it was supposed that only a skillful gardener could increase these Palms. *Linn. Dicœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

This genus includes something like forty species of Palms, the most of them without special interest. *G. gracilis* is a dwarf species of pendant habit, resembling somewhat some of the *Cocos*. It is quite popular for decorative purposes. The species are of but little value in the useful arts. They are increased from seeds.

Geranium. Crane's Bill. From *geranos*, a crane; referring to the beak-like torus, or projection beyond the seeds. *Linn. Monadelphia-Decandria.* Nat. Ord. *Geraniaceæ.*

A somewhat extensive genus of herbaceous plants, most of which are hardy. Two species are common to this country, and several of the species are classed with our native plants, having been naturalized from Europe. A few of the species produce handsome flowers, while most of them are mere weeds. The well-known Geraniums of our gardens are properly Pelargoniums, and will be found under that head.

Gerardia. Named in honor of *John Gerard*, the English herbalist. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

A genus of hardy annuals and perennials, common in many of the States, particularly along the seacoast. The flowers are yellow and purple, and are produced in great abundance. The species are extremely difficult of cultivation, but spread rapidly where once introduced.

Geropogon. Old Man's Beard. From *geron*, old man, and *pogon*, a beard; referring to the hair-like pappus which crowns the calyx in this order. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

There is only one species of this genus, *G. glaber*, a native of Italy, and which is a very curious plant. It is an annual, having a smooth stem and leaves, and growing about a foot high. The flowers are flesh-colored, and expand in the form of a star only when the sun shines upon them. The seeds are very curious, and it is from them that the plant takes its English name. They should be sown in the open border in March or April, and the plants will flower in July and August.

Gesnera. Named after *Conrad Gesner*, a celebrated botanist at Zurich. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

A beautiful and extensive genus of tuberous-rooted green-house plants from Mexico and South America. They are remarkable for the beauty of their foliage, which is singularly marked, and soft as velvet, and for their long spikes of brilliant-colored flowers, mostly scarlet and yellow. Some of them are singularly marked or spotted. One species, *G. Suttoni alba*, from Brazil, has pure white flowers. With a little care in regulating their season of rest, they can be brought into flower at any desired time. They require a light rich soil, a warm situation, but little sun, and plenty of water, which should not touch the foliage. They are easily propagated by cuttings of young shoots, or by cuttings of leaves with a bud at the base, division of the tubers, or from seeds. The latter is a very interesting and simple plan. The certainty that all your plants will be as good as the parents, and the uncertainty as to how good, or how strange they may be, furnish an additional stimulant to grow them in this way. The seed should be sown in March, in pans or boxes, in fine light compost, largely composed of sand. Place the pans in a warm, moist atmosphere. As soon as the seedlings are up, and commence the second leaf, plant separately, an inch or so apart, in shallow boxes, and from these put in small pots as they grow, and let them grow there for the summer. Allow them to go to rest in the autumn, and let them remain in the same pots during winter. As soon as they show signs of life in spring, re-pot in fresh soil, and many of them will come into flower during the summer. The first species were introduced in 1814.

Gethylis. From *getheo*, to rejoice; referring to the sweetness of the flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of the most diminutive of this noble family of plants. They are green-house bulbs from the Cape of Good Hope, producing small white, fragrant flowers in July, singly on a scape not more than six inches high. Propagated by offsets. Introduced in 1780.

Geum. Avens. From *geyo*, to stimulate; the roots of some of them, and of allied species, have the same properties as Peruvian Bark. *Linn. Icosandria-Polygynia.* Nat. Ord. *Rosaceæ.*

A genus of hardy herbaceous perennials, containing some species of an ornamental character, well adapted for the shrubbery border. *G. atrosanguineum*, a bright blue, and *G. coccineum*, scarlet, are very showy. Propagated by seeds or from root division.

Giant Fennel. See *Ferula.*

Gilia. Named in honor of *P. S. Gil*, a Spanish botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

Handsome hardy annuals from California, with white, lilac, and rose-colored flowers. They are low-growing, and profuse bloomers, suitable for borders or rock-work. Seed should be sown in the fall, and the beds lightly covered with leaves.

Gilliflower. See *Mathiola.*

Ginger. See *Zingiber.*

Ginkgo-tree. See *Salisburia.*

Ginseng. See *Panax.*

Gladiolus. From *gladius*, a sword; referring to the sword-shaped leaves. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

This extensive and well-known genus consists of upward of sixty species. With but few exceptions, which will be noted in their descriptions, they are natives of the Cape of Good Hope. They are remarkable for ease of culture, grace of habit, and for the beauty and intense coloring of the flowers, that varies from the most brilliant scarlet to pure white, from clear rose to pure yellow and bright purple. The

habits of the species are as varied as their colors; some delicate and light, others strong and robust, with constitutions adapted to any climate excepting the most frigid. From these species some of the most remarkable hybrids have been produced. In no branch of floriculture has the skill, the zeal, and the perseverance of the hybridizer been so liberally rewarded. A class with almost unlimited numbers of varieties has been produced, that, for the size of flower, beauty in form, size and strength of plant, together with the enormous length of flower spike, are entirely unknown to the species. So popular have these hybrids become that the species are only to be found in botanical collections. As the parentage of the most of our garden varieties is so little known, we give our readers a brief history of the species, whose characteristics are strongly marked in the hybrids. *G. alatus*, the Winged Gladiolus, was introduced by Mr. Thunberg in 1795. It is a very singular species, the three upper segments of the flower being of a bright orange scarlet, softening almost to white in the center, and very strongly veined, while the three lower ones are yellowish tipped with orange scarlet. It has a pleasing fragrance, resembling that of the Sweet Brier. The bulbs are not larger than small peas, and should be grown in light sandy loam, well enriched with thoroughly rotted manure. All the Cape species will thrive under the same treatment, so that cultural instructions for the others will be unnecessary. They should be planted as soon as the ground is in good condition in spring, grown with ordinary care during summer, given perfect rest in winter, and be kept perfectly dry. All the Cape bulbs are more injured by excessive moisture during the dormant season than even by frost, provided they are quite dry when the frost sets in. The reason for this is, that the bulbs, in their native country, are only accustomed to moisture in their growing season; and thus, when the ground around them becomes saturated by autumn rains, they are stimulated into premature activity, as they seem to suppose their growing season has arrived. This unnatural growth has caused the loss of many valuable collections of what is or was supposed to be hardy bulbs. This class, if protected from moisture by a frame, or sufficient mulching, would stand the severity of our winters without that protection. The only safe plan is to take them up as soon as they show signs of ripeness, and keep in a dry, warm room. Propagated by offsets. *G. Algoensis*, the Algoa Bay Gladiolus, and the former species, are allied to the viper species; they have the same general appearance as to form and color. This species is a native of Algoa Bay, on the East coast of South Africa, a much warmer climate than at the Cape, yet the bulbs are much more hardy. It was introduced in 1824. *G. albidus*, the White Gladiolus, is a species properly entitled to its distinctive name, as its flowers are pure white, except very light stains on the backs of the petals, before they expand. The spikes usually furnish three small, but well-opened flowers, of more substance than the average species. It was introduced in 1794, but has been entirely lost sight of until within the last three years, within which time we have seen it grown as a "novelty" in this country, under a "variety" name. *G. angustus*, the Narrow-leaved Gladiolus, is a delicate growing species of but little merit. The flowers are small, and

produced on one side of the stem only; the general color of the flower is dingy white, with the lower petals stained with a heart-shaped mark of red. It is one of the first species introduced into Europe. It was cultivated by Miller in 1757. *G. aphyllus*, the Leafless Gladiolus, is a curious species, at first sight more resembling the Linaria than the Gladiolus. It requires to be grown in the green-house, its time of flowering being in January or February. The bulb sends up a single stem about a foot high, with six or eight flowers, but without a single leaf, except what appears to be the rudiments of one near the base of the stem. The flowers are without fragrance, but are rather pretty, the upper petals being slightly tinted with pink, the lower ones being of darker pink or rose color, shaded with yellow. *G. blandus*, the Fair Gladiolus, is a very handsome species, growing about two feet high, spike strong, producing from eight to ten flowers, which are ranked alternately on each side; color white, the three lower petals each stained with two small oval spots of red. It flowers in June, and was introduced in 1774. *G. brevifolius*, the Short-leaved Gladiolus, is only suitable for green-house culture, as it comes into flower in January. The flowers, though small, are very pretty, from their rosy tint and delicate pencilings, but the flower spike grows nearly two feet long, and is very slender, giving it a naked appearance. It should be grown among plants with large leaves, of lower growth, so that its flowers would show just above them, on a level with the eye. *G. Byzantinus*, the Turkish Gladiolus, is a perfectly hardy species, and when once planted it may be left in the ground for years without taking up. As it produces but few offsets, it requires a long time to become troublesome by crowding. It grows about two feet high, and the spike is well filled with purplish-red flowers. The bulbs may be planted either in spring or fall, the latter being preferable. They must not be planted in the shade, or near trees, full sunshine and free air being necessary for the development of the flowers. This species is desirable in a collection, as it comes into flower in June, and will last until the earlier of the hybrids begin to show their flowers. It is a native of Turkey. Parkinson speaks of it in 1629 as a well-known flower of that period. *G. campanulatus*, the Bell-shaped Gladiolus, is a very handsome species, but singularly ill-named, as its flowers are less bell-shaped than most of the other species. It is of a dwarf habit; flowers lilac, with a red stain on each lower petal. Introduced in 1794. *G. cardinalis*, the Scarlet or Superb Gladiolus, is the most showy of the species. In favorable situations it will grow four feet high. The stem branches out at the top into five or six branches, each bearing six or eight flowers. They are borne on one side only, and are a bright scarlet, with a white, diamond-shaped spot on each petal. The bulbs of this species should be planted as early in spring as possible. Introduced in 1789. *G. carneus*, the Flesh-colored Gladiolus, is a very handsome species, growing from two to three feet high, with broad, sword-shaped leaves, with a narrow white margin. The flowers are very large, with a long tube, and rather narrow-pointed petals, the lower three having a brilliant carmine diamond-shaped spot in the center of each; they are nearly equally disposed on both sides of the stem. The large size and beautiful color of the flowers, together with

the great abundance in which they are produced, has made this a prominent parent in many of our present garden varieties. It flowers in June. Introduced in 1796. *G. cochleatus*, the Spoon-tipped Gladiolus, a curious species, with a very slender stem, sometimes nearly two feet long. The leaves are very narrow, straight, and rigid, tapering to a sharp point. The flowers are white; the three upper petals are only about half the size of the three lower ones, more erect, and are stained with a red, compass-shaped, feathery mark; the central lower petal is spoon-shaped, from which it takes its name. This species must be grown in the green-house, as it flowers in February and March. It was introduced in 1809. *G. communis*, the common Gladiolus, is found pretty generally distributed throughout the south of Europe. It consists of three varieties: white, rose, and purple, all perfectly hardy, of easy culture, and desirable for early flowers in the garden. They are of dwarf habit, the flower spike rarely exceeding two feet in height. The bulb should be planted in autumn, and need not be disturbed oftener than once in three or four years, and not then, unless they get too thick, as they are liable to do, from the immense quantity of offsets they produce. A small clump will produce a large number of spikes at a time when choice flowers in the garden are scarce. *G. Colvillei*, a splendid hybrid, produced in 1823, from the seeds of *G. concolor*, that had been fertilized by the pollen of *G. cardinalis*. The flowers are of a beautiful scarlet, softening into purple in the margin, and have a delicious fragrance. We should not give this hybrid a place among the species, but for the fact of its constancy, there not having been any varieties produced from it. *G. concolor*, the one-colored Gladiolus, is a very desirable species for its color, which is of a clear bright yellow, and the form of its flowers, which are nearly bell-shaped. The number of the flowers varies from two to eight, and are produced on the same side of the spike. In the evening it diffuses a fragrance like the common Pink. This species should be grown in a frame, as its season of flowering is too early for spring planting, and it is impatient of green-house treatment. The species was introduced in 1790. *G. cuspidatus*, the Sharp-pointed Gladiolus, is one of the most remarkable species of the genus, from the great length and undulation of the petals. The flowers, which are produced in May or June, are cream colored, but the lower petals are marked with a very rich and most remarkable stain, which looks like a spot of gold on dark purple velvet. This species was introduced in 1795. *G. debilis*, the Weak Gladiolus, is a species bearing solitary flowers, which differ materially from most others of the genus, as all the sections of the flower are spread open like the Ixias; the two inner sections are marked with a rich, dark, rose-colored spot near the base, the other portions of the flower being white. The leaves and stem are both very long, slender, and weak; hence the name. *G. edulis*, the Eatable Gladiolus, is a remarkable species, from the fact that it is entirely void of beauty. The flowers are white, slightly stained with pink and yellow, and so much curled that they look withered as soon as they expand. The bulb is oblong, firm, and white, and is roasted like chestnuts and eaten by the natives of the Cape of Good Hope. *G. fasciatus*, a very pretty dwarf species, the stem seldom growing six inches high, and never more than a foot. The flowers are of a delicate pink, the petals have waved margins, and the three lower ones have a dark crimson streak down each. This species requires pot culture, as it flowers in winter. The stem is generally branched, and if potted in a small pot first, and afterward shifted two or three times into others, getting gradually larger, without breaking the ball of earth, the plant will form a compact little bush, covered with flowers. *G. floribundus*, the Abundant-flowering Gladiolus, is one of the few species that is considered worthy of cultivation in ordinary collections, as it compares favorably with many hybrids of recent introduction. It grows about one foot high. The flowers are produced abundantly on opposite sides of the stem. They are very large, and stand erect, opening widely, like little Lilies. They are white, with a bright pink stripe down the center of each petal. This species, if planted in a dry, sandy soil, with a sunny exposure, is perfectly hardy around New York. They produce an immense number of offsets, that will flower the second year. Introduced in 1788. *G. gracilis*, the Slender Gladiolus, is one of the least ornamental of the genus, from the great length and slenderness of the stem, its narrow leaves and few flowers, which rarely number more than three, and are of a pale lilac, with the lower petals spotted with black. They are quite hardy, and will grow well in the garden border. *G. hirsutus*, the Hairy Gladiolus, is a species variable in habit, growing from one to three feet high, as the soil and situation suits it. The flowers are large, rose-colored, and all produced on one side of the spike; the scapes and leaves are edged with a deep red margin, and are quite hairy. The fragrance of the flowers resembles that of the Hawthorn. *G. Millerii*, Miller's Gladiolus, an interesting species raised from seed sent from the Cape to England in 1737. The stem is about a foot high, and generally bends to one side. The flowers are all on the same side of the stem; they are large, and of a pale yellow, with a dark pink stripe down the center of each petal. This species requires to be grown in a frame because of its early flowering. *G. Mortonius*, Morton's Gladiolus, is a handsome dwarf-growing species from Southern Africa. The flowers are pale pink, nearly white; the leaves are broad, of yellowish-green. *G. psittacinus*, the Parrot Gladiolus, (synonym *Natalensis*,) is a species that is interesting from the fact of its parentage to the whole family of hybrids of *G. Gandavensis*, now so extensively cultivated. It is a native of the southeast coast of Africa, near Port Natal, and, like other species from there, it is more hardy than the Cape species that are found much farther from the equator. It should be planted in the open ground, and need only to be taken up when the bulbs are overcrowded. It grows from three to four feet high. The flowers are of the most intense scarlet and yellow. *G. ramosus*, the Branching Gladiolus, is unquestionably the finest species of the genus. In the size and beauty of its flowers it yields the palm to none, and, on account of its peculiarly branching habit, it may be considered the most ornamental. In favorable situations the flower-stem will grow five feet high, and produce a succession of flowers from June until August. The flowers are very large, well opened, and of a rosy blush, with heavy carmine stains on the three lower segments or petals. The leaves are proportionately large and handsome, and the

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whole plant forms a magnificent object when given plenty of room for its development. The bulbs should be planted in the fall, in a dry, rich, sandy loam, and they will amply repay a generous mulching. The Dutch were the first to introduce this species from the Cape. They do not give the year. There seems to have been a number of varieties, from which they produced a great number of hybrids, or, more properly, cross-breeds, as they all seem to have the same specific character. *G. recurvus*, the Recurved Gladiolus, is an unassuming, yet interesting species. It is rather a tall, slender-growing plant, usually two feet high, and produces from two to five flowers of small size; color, violet-purple tinged with yellow. The sheath is white, mottled with a purplish-brown, and it is as glossy as the finest porcelain, which, indeed, it greatly resembles. Its fragrance is like that of the violet. *G. suaveolens*, the Fragrant Gladiolus, is a species bearing pale yellow or straw-colored flowers, the upper petals dotted with red. The flowers are small, but very fragrant. It is best suited to green-house culture. Introduced in 1799. *G. undulatus*, the Wavy Gladiolus, is a slender, dwarf-growing species, producing flowers on one side of the stem only. They are of a pale yellow color, with a broad red stripe down the center of each petal. It was introduced in 1760. *G. viperatus*, the Viper Gladiolus, so named because of the resemblance of the flower to a viper's head. This species is more singular than beautiful. The flowers are greenish-gray, with dark stripes, and are very fragrant. Introduced in 1825. We omit descriptions of very many species, having included in the list all, or nearly all, of the important ones, or those with distinctive features, that are now represented in the hybrids that have taken possession of the field, and given the parents only the refuge and protection of the botanical garden.

Hybrid Gladiolus.—The hybridization of any popular tribe, when it is attended with so little labor, in proportion to the results produced, as in this class, is speedily carried to an extent which renders characteristic distinction indefinable; and perhaps the introduction of the numberless names which necessarily arise out of such a circumstance is to be regretted, as occasioning difficulty and labor beyond what most cultivators are disposed to submit to. For the purposes of sale, however, and also to enable the producer to recommend very particular sorts to dealers and amateurs, it is essential that every seedling or variety that is at all deserving of being perpetuated should have a distinctive name. As we have before stated, the many hundred named garden varieties of Gladioli are descendants of *G. Gandavensis*, but how and where this variety was produced has been for a long time an open question, why we could never fully understand, for we have the word of one of the most prominent horticulturists in the world, Louis Van Houtte, whose word was authority whenever given, that it was produced at Ghent, and was a cross between *G. psittacinus* and *G. cardinalis*. This we should consider a full settlement of the question; not so, however; for the late Hon. and Rev. William Herbert, an acknowledged authority on bulbs, says Mr. Van Houtte is in error; for after repeated attempts to hybridize the two, he, Mr. Herbert, could not succeed; consequently it could not be done, and what Mr. Van Houtte said had been done

was a mistake. All the English writers agree with Mr. Herbert, and say the origin of *G. Gandavensis* is obscure. There is no question, however, as to the fact, that to *G. Gandavensis* we are indebted for all our fine garden varieties, as it crosses freely with many of the species, and each cross seems to possess merits superior to either parent. It is a common mistake to call our many varieties hybrids, when in reality they are all, or nearly all, cross-breeds; and this is one of the most interesting features in Gladioli culture, that every cross between well-known varieties tends in almost every case to improve, not only the beauty of the flower, but the vigor of the plant. We wish now to remove, as far as possible, the prevalent erroneous idea, that it is a difficult task to raise new and choice varieties from seed. The only secret, the only mystery is, that one can with so little trouble and expense produce flowers that will give such intense satisfaction and pleasure. It is no more trouble to raise Gladioli from seed than it is to raise the most common vegetable. With the simplest garden culture, there is an almost absolute certainty of success. Prepare your bed in spring as for any hardy annual, sow your seed, and cover to the depth of one inch. Hoe as often as needed for other crops; keep them well weeded; take up the bulbs after a frost, or before, if they show signs of ripening; store them in a dry cellar, free from frost; plant them out again the next spring, and the ensuing summer very many of them will flower. If the precaution is taken to sow the seed in a hot-bed, close the same upon the approach of a heavy rain, which they dislike exceedingly. Very nearly all the bulbs will be large enough to give their most perfect flowers the second year. The fact that the best rarely flower first, will tend to create in the amateur a warm and lively interest. A pertinent question is, how to obtain the best seed. Commence by making a careful selection of the best varieties in cultivation, keeping in view those of the best form, largest size, and of the most intense and positive colors; wherever they are marked or variegated, have the markings bold and distinct. Plant all in a bed so that they will not be more than one foot apart each way. Without further care you will get some good seed; but a better quality and much larger quantity will be obtained by crossing them in all sorts of ways, which is the most effectually done on a dry day, when there is but little air stirring. It is not necessary to cross fertilize for good varieties, though it is a more certain way; yet very many of our best seedlings were accidentals; artificial fertilization being necessary from the fact of their rarely fertilizing themselves. The Gladioli dislikes a stiff, clayey soil, but will thrive well in almost any other, its preference being for one of a moist sandy nature, or light loam. They do best on what is termed sod-ground, with but little manure, and that well rotted. Successive plantings in the same ground should be avoided. Change the locality of the bed every year, so as not to return to the same spot for at least three years. It is much the best plan to make your ground very rich this year, and put on some light crop; then it will be in perfect order for your Gladiolus next. Increase of desirable sorts is effected by the small bulbs or bulblets that form at the base of the new bulb, which are produced in greater or less quantities. Some varieties will have on an average a hundred in a year; oth-

ers will produce scarcely any. This will in a great measure account for the marked difference in prices of the named sorts; it will also account for the rapid increase in the more common sorts, and the sudden disappearance of those greatly prized. Choice sorts are but short-lived, unless they are increased by bulblets. In many of our named sorts, old bulbs will not produce good flowers, if, indeed, they produce any; consequently the bulblets from all favorite sorts should be planted every spring, or at least a sufficient number of them for a required stock. The bulblets should be planted in spring in any convenient out-of-the-way place in the garden, and given the same treatment as is recommended for the seed. If in rich, light soil, very nearly all will flower the second year. They require but little room the first year. Prepare the rows about the width of the common garden hoe, and sow the bulblets (or seeds) so close that they will nearly touch each other, and they will do much better than if more scattered. During winter the bulbs, without regard to size or age, are best kept in a dry, cool cellar. Plantings should be made as early in spring as the ground can be got in order, no matter if there should be hard frosts after; it will not penetrate the ground sufficiently to injure them. For late flowering some of the stronger bulbs may be kept until the first of July, which will keep them back until about the first of October.

Glasswort. See *Salicornia.*

Glaucium. Horn Poppy. From *glaukos*, grayish green; referring to the color of the leaves. *Linn. Polyandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

A genus of hardy annuals and perennials, natives of Europe. They are remarkable for their bright yellow flowers, that are produced in great abundance all the summer, and for their deeply cut leaves, that have a decided glaucus hue. *G. luteum*, one of the most showy and desirable species, is very common at Montauk Point, Long Island, and on the islands along the coast, having become naturalized from Europe. This species grows readily from seed, and makes a valuable plant for the ribbon border.

Gleditschia. Honey Locust. In honor of *Gottlieb Gleditsch*, once a professor at Berlin, and a defender of Linnæus against Siegesbeck, and author of many botanical works. *Linn. Polygamia-Dicœcia.* Nat. Ord. *Fabaceæ.*

A genus of handsome hardy deciduous trees, several of the species being common in the Middle, Southern, and Western States.

Gleichenia. Named after *Gleichen*, a German botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A very extensive genus of Ferns. They are found widely scattered in the tropics, both of the Old and New World, and extending to Chili and the Australasian regions. A few only have found their way into the hot-house, some of which are highly esteemed. They are propagated by division or from spores. Introduced in 1823.

Globe Amaranth. See *Gomphrena.*

Globe Thistle. See *Echinops.*

Globulea. From *globulos*, a small globe; referring to the glands on the petals. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Crassulaceæ.*

A genus of succulent plants, natives of the Cape of Good Hope, with flat, sickle-shaped leaves, arranged in a rosette. The flowers are small, arranged in dense clusters, and have five petals bent inward, each of them tipped with a

little globule of waxy matter, whence the name of the genus, which is closely allied to Crassula. The several species are propagated by cuttings of firmish young shoots, that should be dried a day or two before putting into the propagating bed. Introduced in 1732.

Gloriosa. From *gloriosus*, glorious; because of the magnificent flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A very handsome genus of green-house bulbs, of limited climbing habit, the flowers curiously shaped, bright yellow or orange color. They should be grown in pots of very sandy loam, and treated in the manner recommended for Gesnera, except that, being climbing plants, they will require to be supported with sticks or a trellis. Natives of South Africa. Introduced in 1825.

Glory Pea. See *Clianthus.*

Glossocomia. From *glossocomos*, a money-bag; referring to the shape of the flower. *Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

A small genus of hardy herbaceous plants, white or purple bell-shaped flowers, from Northern India. They are increased by seeds or division. Introduced in 1839.

Gloxinia. Named after *P. B. Gloxin*, a botanist of Colmar. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

The species that compose this splendid genus are, with one or two exceptions, natives of South America, and are usually found in deep ravines, on rather high mountain elevations, and in damp, much-shaded situations. The species are among the greatest ornaments of our green-houses, and the richness of their foliage, and their ample, graceful, and delicately-tinted flowers, have gained for them a prominent place among the more choice flowering plants. Here, as in many other instances, the process of hybridizing has been largely resorted to, and the results are most satisfactory. The older kinds, with drooping flowers, have mostly given place to forms with the corolla almost regular and nearly erect, the latter peculiarity having this recommendation, that the border and throat of the corolla, to which parts much of the beauty of the flower is owing, are presented to the eye. The hybrids are greatly improved in color as well as form, and the flowers are produced in greater abundance than with the species. The main art in growing *Gloxinias* well is to give them a porous and well-enriched soil, to grow them in a warm, moist atmosphere, and as soon as they begin to flower to remove them to a cooler house, and afterward dry them off gradually, and keep them free from moisture till they again begin to grow. To produce the richest colors the glass should be shaded, or they should be grown where there is only a northern exposure. *Gloxinias* are readily propagated by their leaves; all that is required is to insert the leaf, about one-half its length, in an ordinary propagating bed, keep the sand moderately wet until the leaf is completely dried up, then withhold water entirely, and leave the newly-formed tubers until the following February, at which time they will commence to grow, when they should be taken out and potted. They will flower in one year after the cuttings are put in. They are also produced easily from seed, which they ripen abundantly. On account of its very small size it should be sown on a smooth surface of soil, and merely covered with a slight covering of moss laid lightly over it, and kept

on until germination has taken place. The plants can be pricked out into small pots or shallow boxes when the leaves are an inch long; with careful attention they will make flowering plants the first season. In all the stages of growth, whether the plants are large or small, care should be taken, in watering, to avoid wetting the leaves, or to have the earth sodden around them; either will cause them to damp off and rot. They require a temperature, when growing, never less than 70°. This plant was first introduced in 1739.

Glyceria. From *glykeros*, sweet; alluding to the herbage. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

An extensive genus of grasses, mostly aquatic. They are of but very little beauty or interest. A few of the species that grow in moist meadows, near the sea-coast, furnish a pasture that is relished by stock of all kinds. The species are common throughout the Northern, Eastern, and Western States.

Glycine. From *glykys*, sweet; referring to the taste of the roots of some of the species. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A small genus, nearly all of which are tender climbing plants, producing axillary flowers, singly or in racemes, white, yellow, or rose; they are only adapted for green-house culture. There is one species, *G. soja*, that is a hardy annual, a native of Japan, that produces seeds like small kidney beans, which the Japanese use in large quantities, either in soup, or in making a sauce called sooja or soy, this sauce being used in many of their dishes. The *Wistaria* was formerly incorrectly called Glycine.

Glycyrrhiza. Liquorice. From *glykys*, sweet, and *rhiza*, a root; referring to the sweet juice of the roots of the liquorice. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of hardy herbaceous perennials, the one of principal interest being *G. glabra*, a native of Italy, the roots of which produce the Liquorice of commerce. None of the species are cultivated as ornamental plants.

Gnaphalium. From *gnaphalon*, soft down; in reference to the woolly covering of the leaves. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A genus known as *Everlastings*. Many of the species formerly included in it are now classed with the *Helichrysum*. There are several species, hardy annuals, very common in the Middle and Southern States, and are the only ones worth cultivating.

Gnidia. The ancient name of the Laurel. *Linn. Octandria-Monogynia.* Nat. Ord. *Thymelaceæ.*

A genus of green-house evergreens, producing pale yellow flowers. In habit they resemble the Heath. They are quite pretty, but difficult of cultivation. They are natives of the Cape of Good Hope. Propagated by cuttings. Introduced in 1768.

Goat's Beard. A popular name of *Spiræa aruncus.*

Goat's Rue. See *Tephrosia.*

Godetia. Named by Spach, a German botanist, resident in Paris; it is probably a Latinized proper name. *Linn. Octandria-Monogynia.* Nat. Ord. *Onagraceæ.*

A genus of exceedingly handsome and showy hardy annuals from California, growing about a foot and a half high, and producing numberless rosy-lilac flowers. The seed should be started in the hot-bed in March, and transplanted into

poor soil when danger from frost is over. They require plenty of room. Close planting will draw them up, and weaken them, and rich soil will produce more leaves than flowers.

Goethe Plant. A Continental name of *Chlorophytum Sternbergianum.*

Golden Chain. *Cytisus Laburnum.*

Golden Club. See *Orontium.*

Golden Rod. See *Solidago.*

Goldfussia. Named after *Dr. Goldfuss*, Professor of Natural History in the University of Bonn. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Acanthaceæ.*

A genus of green-house evergreen shrubs, from Silhet, formerly called *Ruellia anisophylla.* The flowers have two deciduous bracts, and are arranged in a head or spike, which, after the fall of the bracts, becomes very loose and straggling. The flowers are funnel-shaped, blue or purple. The plants require to be cut well back after flowering. Propagated by cuttings. Introduced in 1838.

Gold Thread. See *Coptis.*

Gombo. See *Hibiscus.*

Gomphia. Button Flower. From *gomphos*, a club; alluding to the shape of the fruit. *Linn. Decandria-Monogynia.* Nat. Ord. *Ochnaceæ.*

A genus of very beautiful tender shrubs from the West Indies and South America. The flowers are pure bright yellow, borne in dense panicles. They require the warmest place in the green-house. Propagated by cuttings.

Gomphrena. Globe Amaranth. From *gomphos*, a club; alluding to the shape of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Amaranthaceæ.*

This is supposed to be the Amaranth of the poets, which, from the durability of its flowers, was considered to be the emblem of immortality. It seems to have been used at funerals in the time of Homer, as he describes it as worn by the Thessalians at the funeral of Achilles. The *Gomphrenas* are tender annuals. The seeds are slow to germinate, and should be sown in March in a hot-bed or in seed pans in the green-house. The plants will be greatly benefited by pricking out, or re-potting two or three times before planting in the open border. With this treatment, single plants can be made to produce several hundred flowers. The flowers of the garden varieties are white, purple, and striped. If cut before fully ripe, and tied in bunches, and allowed to dry in a rather dark and airy room, they will retain their colors the whole season, making them desirable for bouquets of dried flowers. *G. globosa*, the best known species, is a native of India. Introduced in 1714.

Goniophlebium. From *gonia*, an angle, and *phlebia*, a vein; alluding to the veins of the fronds. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

Hot-house Ferns, found in nearly all tropical countries. A few are simple-fronded species, with a creeping, ivy-like habit, and contracted fertile fronds; but they have mostly stoutish, slow-creeping rhizomes, and large fronds, often of a pendulous habit, and sometimes several feet in length. Some are exceedingly handsome, and valued in collections. They are propagated by division in spring.

Gongora. Named after a Spanish viceroy of New Granada. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A singular genus of Orchids from tropical America. They are compact growing and ever-

green, producing long pendulous racemes of flowers rich in color and often grotesque in appearance. They can be successfully grown in what is termed a "cool Orchid house," or a green-house.

Goodia. Named after *P. Good*, a collector of plants in Australia for the Kew Gardens. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

Handsome evergreen shrubs from New Holland. They are all erect, symmetrical plants, with beautiful foliage. The flowers are pure yellow, produced in racemes like those of the Laburnum, but smaller. They require green-house treatment. Propagated by seeds or cuttings.

Goodyera. Named after *J. Goodyer*, an early British botanist. *Lynn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of terrestrial Orchids, with small white flowers like those of *Spiranthes*, but the spike is not spiral. It consists of very few species, all from the northern hemisphere, and mostly from high latitudes or mountain ranges. *G. discolor* has dark green velvety leaves with a silver stripe down the middle, and is a very handsome plant. Requires a warm green-house. There are several hardy species, with pure white and greenish white flowers, common to our woods from New York to Wisconsin.

Gooseberry. See *Ribus.*

Gooseberry Shrub. See *Pereskia.*

Goose-foot. See *Chenopodium.*

Goose-grass. See *Galium.*

Gordonia. Named by Dr. Garden in honor of his old master, *Dr. James Gordon*, of Aberdeen. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Ternstromiaceæ.*

A genus of half-hardy deciduous shrubs or low trees, common in the Southern States. *G. lasianthus* is popularly known as Loblolly Bay, and is common in swamps near the coast from Virginia southward.

Gossypium. Cotton Tree. From *goz*, or *gothro*, an Arabic word signifying a soft substance. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

There are several distinct species of cotton plants, and a great many varieties. Some are herbaceous annuals, others shrubs three or four feet in height, and others attain a height of from fifteen to twenty feet. The stems are smooth or hairy, leaves either three or five lobed, fine shaped, cordate, blunt, or lanceolate. The flowers are large, with yellow or white petals, and a purplish center, and are succeeded by pointed pods, which, on coming to maturity, burst, and display a profusion of white or yellowish down that forms the cotton of commerce. In the center of this down are contained the seeds, varying in number from ten to thirty, according to the species, of a dark brown color, and of a very oily nature. The early history of the Cotton plant is involved in obscurity, nor can it be ascertained in what region of the globe it was first cultivated and applied to purposes of domestic use. Herodotus, who wrote about 450 B. C., and who had traveled into Egypt, and was familiar with its productions, does not describe the Cotton plant as existing there, but gives some obscure hints of such a plant being in use in India. The inhabitants of India, says he, possess a kind of plant which, instead of fruit, produces wool of a finer and better quality than that of sheep; of this the natives make their clothes. When describing the corselet of Amasis, he accordingly designated Cotton under the name of tree-wool, a combination of terms which the Germans use for the same substance at the present day. His particularly detailing the linen garments of the Egyptians, and their mode of weaving linen cloth, as differing from that of the Greeks, while he omits all mention of the manufacture of cotton garments, would lead us to suppose that the Cotton plant was unknown to the Egyptians; and that, if they possessed Cotton cloth at all, it was imported from India. Pliny, however, in his work on Natural History, describes the Cotton plant as a small shrub growing in Upper Egypt, called by some *xylon*, and by others *gossypium*, the seeds of which are surrounded by a soft downy substance of a dazzling whiteness, and which is manufactured into cloth much esteemed by the Egyptian priests. This was five centuries after the time in which Herodotus wrote, and during this period the plant may have become more common. From Pliny's account, it would not appear that Cotton was much used at Rome, even in the first century of the Christian era, nor for many centuries afterward was its use introduced into Europe. But in the ninth century the Arabians, who were then in possession of Egypt, appear to have used Cotton cloth for their ordinary garments; for one of the first remarks of two Arabian travelers, who went to China at that period, was, that the Chinese, instead of weaving Cotton, as they and their countrymen did, chiefly used silk stuffs. It is probable, then, that the Cotton plant first came from Persia to Egypt, whence it spread into Asia Minor, and latterly to the islands of the Archipelago. In the time of Tournefort, who visited these islands, Milo was celebrated for its Cotton. The Cotton now raised in small quantities in the Cyclades possesses that dazzling whiteness which Pliny describes as the property of the Egyptian Cotton. The Cotton plant has been grown from an early period, in the West Indies, in the Southern States, and in South America. Whether any of the species are natives of this Continent, it is difficult to say; the probability is, however, that it was introduced, soon after the discovery of the West Indies, into these settlements, from Smyrna. It should be stated, however, that Cotton cloth has been found in the tombs of the Incas of Peru. The extensive cultivation of Cotton in this country is of a recent date. In 1784, 8 bags were sent from this country to England, which were seized, on the ground that so much Cotton could not be produced in the United States. Since the Revolution, the increase of production has been steady and rapid. Of the species under cultivation, *G. Barbadense* is the one grown in the United States, and of this there are two varieties, the Upland Cotton, or short staple, and the Sea Island Cotton, or long staple. This species is a native of India, whence it was transplanted into the West Indies, and from there into the United States. *G. herbaceum*, the herbaceous Cotton plant, is the species cultivated throughout Europe and Asia. It is an annual plant, growing to the height of about twenty inches. The Tree Cotton, *G. arboreum*, is a perennial species, growing from fifteen to twenty feet high, and is considerably grown in the African Colonies, but does not yield a very fine staple. A very coarse growing species, *G. bombyx-ceiba*, is common in the West Indies, said to be indigenous there. The trunk of this species is sufficiently large to hollow out

for canoes, and yields a valuable lumber; the Cotton is of a coarse, inferior quality. The general uses of this staple are too important and well known to require comment. The seed has, however, a value but little known. Near the City of New York there is an oil mill that makes daily several thousand gallons of oil from Cotton seed, which is sent to Italy, there bottled, and sent all over the world, and sold as a very superior quality of Olive Oil, for table use. The seed is also valuable as a manure.

Gouania. Chaw Stick. Named after *A. Gouan*, once Professor of Botany at Montpelier. *Linn. Polygamia-Dicœcia.* Nat. Ord. *Rhamnaceæ.*

A genus of climbing tropical shrubs, containing upward of twenty species. The most interesting, *G. Domingensis*, is a common creeper in the West Indies and Brazil. In Jamaica it is called Chaw Stick, on account of its thin, flexible stems being chewed as an agreeable stomachic, and tooth brushes are also made by cutting pieces of Chaw Stick to a convenient length and fraying out the ends; and a tooth powder is prepared by pulverizing the dried stems. It is said to possess febrifugal properties; and on account of its pleasant bitter taste is commonly used for flavoring different cooling beverages.

Gourd. See *Cucurbita.*

Govenia. Named after *J. R. Gowen*, a distinguished horticulturist and cross-breeder of plants. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of interesting terrestrial Orchids from Mexico. The flowers are borne on spikes from one and a half to two feet high, in the same manner as the *Bletia.* The colors are mostly shades of yellow, beautifully marked with crimson. Propagation and culture the same as for *Bletia.*

Grains of Paradise. See *Amomum.*

Grammanthes. From *gramma*, writing, and *anthos*, a flower; marks like V being on the corolla. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Crassulaceæ.*

Succulent herbaceous plants, natives of the Cape of Good Hope. Seed sown in the greenhouse in January will make very showy and interesting plants for rock-work during summer. The flowers closely resemble those of *Crassula*, to which it is allied. Introduced in 1774.

Grammatophyllum. From *grammata*, letters, and *phyllon*, a leaf; referring to the markings on the leaves. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

The species of this genus are but few in number, and are rarely seen in collections of Orchids, because of the difficulty in management. Those who have had the good fortune to flower them say that it is at the expense of years of patience and labor that their rare and curious flowers are produced. They are natives of Manilla. Introduced in 1837.

Grape. *Vitis vinifera.* Like many extensively cultivated plants, the native country of the Grape is unknown, or at least doubtful. It is among the plants spoken of in the Books of Moses, and it appears to have been cultivated and the fruit used then as at the present day. Noah planted a vineyard, and wine is mentioned as a beverage among the earliest nations of the world. The oldest profane writers ascribe its introduction to their gods. According to the tradition of the Egyptians, Osiris first paid attention to the Vine, and instructed other men in the manner of planting and using it. The inhabitants of Africa ascribe the same gift to the ancient Bacchus. Wine was among the first oblations to the Divinity. "Melchisedek, King of Salem, brought forth bread and wine, and he was the priest of the Most High God." Humboldt says the Vine does not belong to Europe, but is indigenous in Asia between the Black Sea and the Caspian, of Mount Ararat and of the Taurus. In the forests of Mongrelia it flourishes in great magnificence, climbing to the tops of the highest trees, bearing bunches of fruit of delicious flavor. We have no authentic account of the introduction of the Vine into the present grape-growing countries, or of the origin of the many varieties now under cultivation. More than one hundred varieties have been introduced into our graperies, and into the Southern States and California, where the climate will permit of their being grown in the open air. The Grapes grown throughout the United States have their origin in the species indigenous to North America. *V. labrusca*, the Fox Grape, common in swampy grounds from Maine to the Gulf of Mexico, is the parent of our best garden varieties, among others the Isabella, which originated in South Carolina, and the Concord, which originated in Massachusetts. The Catawba had its parentage in *V. riparia*, the common Frost Grape, or at least it is so accredited. The Diana, a seedling of the Catawba, was raised by Mrs. Diana Crehore, of Boston. The introduction of new varieties, from seed, of various crossings, is being rapidly carried on by our enterprising horticulturists.

Grape Hyacinth. See *Muscari.*

Grass of Parnassus. See *Parnassia.*

Graptophyllum. Caricature Plant. From *grapho*, to write, and *phyllon*, a leaf; referring to the markings on the leaves. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A genus of tropical shrubs, inhabiting both hemispheres. A few of the species have been introduced into the hot-house for the beauty of their variegated foliage and their racemes of white flowers. *G. pictum* is properly called the Caricature Plant, from the fact that, when its leaf is held up to the light, it often presents nearly an exact profile of the human face. *G. Nortonii*, a more recent introduction, is a very distinct and beautiful species, with rich rose-colored spots or markings. Propagated by cuttings. First introduced in 1780.

Great Laurel. See *Magnolia.*

Greek Valerian. See *Polemonium.*

Green Brier. See *Smilax.*

Green Violet. See *Tolea.*

Grevillea. Named after *C. F. Greville*, a patron of botany. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Proteaceæ.*

An extensive genus of green-house shrubs and evergreen trees, natives of New Holland. The species include lofty trees more than a hundred feet high, and low-growing shrubs. *G. robusta*, the Silk Oak, is a magnificent tree, with orange-colored flowers. *G. Forsterii* is a similar species with bright scarlet flowers, that are produced when the tree is young. The foliage of the species is as varied as the size of the plants. On some of the trees it is needle-shaped; others have leaves closely resembling those of the *Acanthus.* Several of the species are under cultivation in the green-house, and are considered acquisitions. Young plants are obtained from seed.

Greyia. Named in honor of *Sir George Grey*, who was Governor-General of the Cape Colony at the

time of its discovery. *Linn. Decandria-Pentagynia.* Nat. Ord. *Sapindaceæ.*

G. Sutherlandi, the only species, is a beautiful and distinct moderate-sized tree, found in the mountains about Port Natal. Its foliage is similar to a *Pelargonium*. The flowers are borne in dense axillary racemes, and are of a brilliant crimson color, giving to the tree a very handsome appearance.

Grias. Anchovy Pear. From *grao*, to eat; the fruit being eatable. *Linn. Polyandria-Monogynia.* Nat. Ord. *Barringtoniaceæ.*

G. cauliflora, the only species, is a tall, unbranched tree, with leaves two or three feet long, and bearing large whitish flowers, which proceed from the stem. The fruit has much the taste of the Mango, and is highly esteemed in the West Indies, where it is indigenous. The tree is largely cultivated, not only for its fruit, but for its highly ornamental character.

Griffinia. Named after *W. Griffin*, a patron of botany. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of handsome bulbous plants from South America. The flowers are of a beautiful purple, borne in an umbel. They require green-house treatment, and should have complete rest during winter. In March re-pot them, and they will immediately commence growth, and will require plenty of heat, light, air, and water. They are increased by offsets. Introduced in 1822.

Ground Cherry. See *Physalis.*

Ground Hemlock. See *Taxus.*

Ground Laurel. See *Epigæa.*

Ground Nut. See *Apios.*

Ground Pine. A popular name of *Lycopodium dendroideum.*

Ground Pink. See *Phlox.*

Ground Plum. A popular name of the fruit of *Astragalus caryocarpus.*

Groundsel. See *Senecio.*

Groundsel Tree. See *Baccharis.*

Guaiacum. Lignum Vitæ. The original name in South America. *Linn. Decandria-Monogynia.* Nat. Ord. *Zygophyllaceæ.*

A genus of ornamental trees with pretty blue flowers. *G. officinale* furnishes the well-known wood *Lignum Vitæ*, and also the drug known as *Gum Guaiacum*, which is procured by notching the trunk, and allowing the exuding juice to harden. It is a native of the West Indies.

Guava. See *Psidium.*

Guelder Rose. *Viburnum opulus.*

Guernsey Lily. *Nerine Sarniensis.*

Guevina. Derivation of name not given. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Proteaceæ.*

G. avellana, the only species, is a tree of medium size, a native of Chili and Peru. The flowers are in simple, erect racemes two to four inches long, and these are succeeded by round edible drupes, inclosing almond-like seeds, known as Chilian nuts. The latter have an agreeable, somewhat oily taste, while the fleshy part is made a substitute for the Pomegranate.

Guinea Corn. See *Sorghum vulgare.*

Guinea Grass. See *Sorghum halapense.*

Gum Arabic Tree. See *Acacia Arabica.*

Gum Guaiacum. See *Guaiacum.*

Gum Tragacanth. See *Astragalus.*

Gustavia. Named after *Gustavus III.* of Sweden. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Barringtoniaceæ.*

A genus of fine evergreen trees and shrubs,

with large, handsome, glossy leaves and showy white flowers, sometimes five or six inches across, tinged with pink, not unlike those of some Magnolias. They are disposed in racemes or umbels at the ends of the twigs. The fruits are somewhat fleshy and apple-like. *G. gracillima* is a magnificent plant, introduced from the United States of Columbia by M. Roezl. It has a smooth, slender, woody stem. The flowers grow from the axils of the leaves of the young plants, and from the leafless parts of the trunk in the older ones. They are solitary or in pairs, four inches in diameter, of a beautiful rose color, consisting of eight petals, with the yellow incurved staminal tube bearing numerous purple anthers in a ring of an inch or more across. This species was introduced in 1874. Propagated by cutting of well-ripened wood.

Gutta Percha. See *Isonandra.*

Guzmannia. Named after *A. Guzman*, a Spanish naturalist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

Green-house perennials, natives of South America. *G. tricolor* is a pretty species, with flowers on a spike, concealed by the bracts, the lowermost of which are green, while the others are scarlet. It requires ordinary green-house treatment. Propagated by suckers.

Gymnema. From *gymnos*, naked, and *nema*, a filament; in reference to the stamens. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

G. lactiferum is the Cow Plant of Ceylon, the milk of which is used as food by the natives. The species are green-house evergreen twiners, producing clusters of yellow flowers from the axils of the leaves. They are allied to the *Stephanotis*, and require the same treatment.

Gymnocladus. Kentucky Coffee Tree. From *gymnos*, naked, and *klados*, a branch; in reference to the soft young wood, devoid of buds. *Linn. Diœcia-Decandria.* Nat. Ord. *Fabaceæ.*

G. Canadensis, the only species, is an ornamental, hardy, deciduous tree, growing fifty to sixty feet high. It is one of our most beautiful shade trees, and is planted to a considerable extent on the streets in Washington, D. C.; it is also valuable for its hard tough timber. Common from New York, South and West.

Gymnogramma. From *gymnos*, naked, and *gramma*, writing; in reference to the spore cases. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of very beautiful Ferns, requiring the warm green-house to grow them. In some of the species the under surface of the fronds is profusely covered with a rich yellow or white farinose powder, which gives them the name of Gold or Silver Ferns, so frequently seen in cultivation, on account of the beauty of their fronds. This genus contains two of the very few known annual Ferns, *G. chærophylla*, a West Indian plant, and *G. leptophylla*, which is found scattered over nearly the whole of the temperate regions of the globe.

Gymnostachyum. Fittonia. From *gymnos*, naked, and *stachys*, a spike. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

This genus consists of a few dwarf herbaceous plants, of prostrate habit, with leaves beautifully veined with white or red. The species are considerably grown for Wardian cases or Ferneries, for which purposes they are well suited. When well grown they make splendid specimen plants for the hot-house. They should be grown in a humid atmosphere. Propagated by cuttings.

Introduced from Brazil in 1863. Perhaps better known under the name of *Fittonia*.

Gymnothrix. A genus of Grasses, now united with *Pennisetum*.

Gynerium. Pampas Grass. From *gyne*, female, and *erion*, wool; the stigmas being woolly. *Linn. Diœcia-Diandria.* Nat. Ord. *Graminaceæ*.

A genus of ornamental Grasses. That which is best known and cultivated is *G. argenteum*, Pampas Grass, so called from its being a native of the vast plains of South America, called Pampas. This splendid Grass is not sufficiently hardy at the North without a mulching of dry leaves or litter around the roots. The clumps can be taken up in the fall, and kept in any convenient place away from frost during winter. With the best possible care and culture there cannot be produced such magnificent plumes, either North or South, as are grown in Southern California, where the plumes are grown largely for Northern and European markets. This species was first introduced in 1848.

Gypsophila. From *gypsos*, chalk, and *phileo*, to love; in reference to the soil most suitable for them. *Linn. Decandria-Digynia.* Nat. Ord. *Caryophyllaceæ*.

"This genus is characterized more by grace than striking beauty of flowers. The flowers are small, but produced in great numbers in loose, graceful panicles. They are plants that are easily cultivated, and are propagated by division and seeds, the latter in the open ground in spring." The flowers of the species are useful in making up in dried bouquets, as they retain their color during winter perfectly. They are also well adapted for rock-work.

H.

Habenaria. Rein Orchis. From *habena*, a rein or thong; referring to the long strap-shaped spur. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

A well-known and somewhat extensive genus of terrestrial Orchids, pretty generally distributed. Our native species have very curiously-shaped flowers, which are generally yellow, but sometimes purple, and occasionally white. They grow well in moist, shady situations. Several of the species are to be found in marshy places on the south side of Long Island.

Habranthus. From *habros*, delicate, and *anthos*, a flower. *Linn. Hexandria - Monogynia.* Nat. Ord. *Amaryllidaceæ*.

Very handsome South American bulbs, which, like the rest of the order, should have a decided season of rest. They grow best in a rich soil composed of loam, rotted manure, and sand, should be well-drained, and have plenty of water when growing or flowering. These plants are found growing in dry, gravelly places, and are half hardy. They will winter in a cold frame with slight protection. Introduced in 1821.

Habrothamnus. From *habros*, gay, and *thamnos*, a shrub. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ*.

A genus of Mexican shrubs, closely allied to *Cestrum*, and one of the gayest productions of that country. The panicles of red or purple flowers are borne in abundance, and justify the name applied to them. Propagated by cuttings. The species do well with the treatment of *Pelargonium*. Introduced in 1844.

Hackberry. See *Celtis*.

Hackmatack. A local name for *Larix Americana*, the American or Black Larch.

Hacquetea. In honor of *B. Hacquet*, a German botanist. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ*.

H. epipactis, the only species, is a hardy herbaceous perennial plant, of very dwarf habit, having digitate three-lobed leaves, and a single umbel of small yellow flowers. It is a native of the Alps, and, like most Alpine plants, difficult to manage here.

Hæmanthus. From *haima*, blood, and *anthos*, flower; referring to the color of the spathe and filaments of some species. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ*.

A genus of South American bulbous plants, producing large scarlet, orange, and yellow flowers of very singular appearance. *H. coccinea* is a beautiful species, and does well in the greenhouse. It should be grown in sandy loam and leaf mould. It is a strong grower, requiring considerable room. After making its growth it requires a season of perfect rest, after which it throws up its flower stalk, and should have plenty of water. They grow in fall and winter, and rest during spring and summer. Propagated by offsets. Introduced in 1629.

Hæmatoxylon. Logwood. From *haima*, blood, *xylon*, wood; Logwood is well-known for its red color. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ*.

H. Campechianum, the well-known Logwood of commerce, is the only representative of this genus. It is a handsome evergreen tree, growing about forty feet high, with a trunk about a foot and a half in diameter. It was first found on the Bay of Campeachy, in Yucatan, whence its specific name. It is also found in other parts of Central America, and has been introduced into, and become naturalized in, many of the West Indian Islands. Its importance consists in its value as a dye-wood, for which purpose it forms an important article of commerce.

Hakea. Named after *Baron Hake*, a German patron of botany. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Proteaceæ*.

A genus of green-house evergreen shrubs, containing more than a hundred species, all natives of New Holland. The flowers of nearly all are white, produced in axillary clusters. None of the species has sufficient beauty, either in flower or foliage, to give it a place in ordinary collections.

Halesia. The Snowdrop Tree. Named after *Dr. Hales*, author of *Vegetable Statics*. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Styracaceæ*.

A small genus of hardy deciduous shrubs or low-growing trees. One of the species, *H.*

tetraptera, is found on the banks of the Ohio, from Virginia westward, usually in very poor, rocky soil. It is a free-flowering shrub, of a graceful, drooping habit. The flowers are white, resembling those of the Snowdrop. The seeds are curiously winged. This species improves by cultivation, and thrives well in a poor soil, preferring one near water. It is readily increased by layering, or from seeds.

Hamamelis. The Witch Hazel. From *hama*, together with, and *mela*, fruit; referring to the flowers and fruit being on this tree at the same time. *Linn. Tetrandria-Digynia.* Nat. Ord. *Hamamelidaceæ.*

H. Virginica is a native shrub, which will grow freely in any soil that is not too rich, though it prefers a dry, stony gravel. It has the peculiarity of flowering during winter, beginning to expand its rich, deep yellow flowers just as its leaves are falling off, and dropping its flowers when its branches begin to be reclothed with leaves in spring. The shrub is celebrated for the extract distilled from its bark and roots. Its seeds contain a quantity of oil, and are edible.

Hardhack. *Spiræa tomentosa.*

Harpalium. From *Harpalyce*, daughter of Lycurgus. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Asteraceæ.*

H. rigidus, the only species, is *Helianthus rigidus* of Gray, a coarse-growing perennial, with yellow flowers, common in the Western States.

Harpalyce. After *Harpalyce*, daughter of Lycurgus. *Linn. Syngenesia-Monogynia.* Nat. Ord. *Asteraceæ.*

A small genus of handsome, erect, pinnate-leaved bushes from Mexico and Brazil. *H. Braziliana* bears handsome, scarlet pea-shaped flowers in a panicle toward the ends of the shoots. The Mexican species are smooth, and bear purple flowers. Propagated by cuttings.

Harebell. See *Campanula.*

Hart's Tongue. See *Scolopendrium.*

Hartford Fern. See *Lygodium.*

Hartwegia. Named after *M. Hartweg*, court gardener to the Emperor of Austria, and once a collector for the Royal Horticultural Society. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids, of but little interest, except in large collections. *H. purpurea* is a very pretty little plant, with spotted foliage, and long, slender spikes of purplish pink flowers. It is an almost constant bloomer, growing freely on blocks or cork in an ordinary green-house. It is a native of Mexico. Introduced in 1837. It is increased by division of plants in the spring.

Hawkweed. See *Hieracium.*

Haworthia. Named in honor of *A. H. Haworth*, a distinguished English botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A pretty and curious genus of succulents, that offer many inducements to the admirers of that class of plants. They are commonly known as Aloes, from which they were separated. The plants are mostly small, but particularly interesting on account of their upright flowers, which are always gray, and the translucent leaves of some of the species. The foliage of all is prettily marked. They are all natives of South Africa. First introduced in 1727. They require the same treatment as the *Aloe.* They are readily increased from suckers, or from seed.

Hawthorn. See *Cratægus.*

Haylockia. Named after *Mr. Haylock*, gardener to Dr. Herbert. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small bulb from Buenos Ayres, allied to Zephyranthes; flowers straw colored, solitary. It is nearly hardy, the protection of a cold frame only being needed in this climate. Propagated by offsets. Introduced in 1829.

Hazel Nut. See *Corylus.*

Heal-all. See *Brunella.*

Heartsease. See *Viola tricolor.*

Heath. See *Erica.*

Heather. See *Calluna.*

Hedeoma. Mock Pennyroyal. From *hedeoma*, the Greek name of Mint. *Linn. Diandria-Monogynia.* Nat. Ord. *Lamiaceæ.*

The only species of interest in this genius is *K. pulegioides*, the common Pennyroyal of our woods, which is noticed in the genus *Mentha.*

Hedera. The Ivy. The name appears to be derived from *hedra*, a Celtic word, signifying a cord; and the English name, Ivy, is derived from *iw*, a word in the same language, signifying green, from its being always green. *Linn. Pentandria-Monogynia.* Nat. Ord. *Araliaceæ.*

This well-known plant is what botanists call a rooting climber; that is to say, its stems climb up trees, walls, sides of dwellings, or any other suitable object which presents a sufficiently rough surface for their roots to take hold of; as, unless this is the case, the Ivy, whenever it is rendered heavy by rain or snow, falls down. Whenever, therefore, Ivy is wanted to cover smooth, newly-plastered walls, the Ivy should be nailed against them, or secured with copper wire. The Ivy is remarkable for undergoing a complete change in its leaves when it flowers. The barren, or creeping Ivy, which trails along the ground, and roots into it, rarely flowers, and its leaf is deeply cut; but the tree Ivy, or flowering part, rears itself on high, so as to be fully exposed to the light and air, and the leaves become of an oval shape. *H. Canariensis*, the giant or Irish Ivy, as it is sometimes called, though it is a native of the Canaries, is hardier and grows much faster than the common kind; but the variegated kinds are tender, and grow much slower. Ivy requires a deep and somewhat light soil, into which its roots can penetrate easily; and when grown for any purpose in pots or boxes, it should be abundantly supplied with water. Ivy is useful in all cases where a naked space is to be covered with green in a short space of time; and it is particularly valuable in town gardens, as it will bear the smoke and want of pure air in cities better than most other plants. It should, however, in all close and crowded situations, be abundantly supplied with water, and occasionally syringed over the leaves. The gold and silver varieties are very beautiful, especially the former, when grown against the chimney of a dwelling-house or green-house; but they, like nearly all variegated leaved plants, are more tender, and require a higher temperature than the plain green-leaved kinds. Increased freely by cuttings.

Hedge Bindweed. See *Calystegia.*

Hedge Mustard. See *Sisymbrium officinale* and *Erysimum.*

Hedge Nettle. See *Stachys.*

Hedychium. Garland Flower. From *hedys*, sweet, and *chion*, snow; in reference to the sweet-scented, snow-white flowers of some of the species. *Linn. Monandria-Monogynia.* Nat. Ord. *Zingiberaceæ.*

A beautiful genus, deserving a place wherever space can be afforded them in the hot-house. They will attain a height of from three to five feet, and flower profusely, fully proving the fitness of the term, "Garland Flower," applied to them. There are a large number of species, mostly from the East Indies. They are propagated by division of the plants, before re-potting in spring, after a season of partial rest. Introduced in 1820.

Hedysarum. The French Honeysuckle. From *hedysaron*, the name of a papilionaceous plant described by Theophrastus. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

The many species are handsome flowering plants, embracing annuals, biennials, and perennials, which require only the usual treatment of their respective kinds. They are increased by division of the roots and by seeds. *H. gyrans* is remarkable for the property possessed by its leaves of setting up a spontaneous motion, independent, as far as observation reaches, of all external impressions. Without being touched or excited by heat, light, wind, or rain, sometimes a single leaflet, sometimes a whole leaf, oscillates or gyrates, continuing to move for an indefinite time, and ceasing without a known cause. The species are found throughout Europe, and have long been under cultivation.

Helenium. Sneeze Weed. Named after the beautiful *Helena*, the cause of the Trojan war. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A small genus of showy, hardy herbaceous plants, with a few hardy annuals. The flowers are mostly large and yellow, somewhat resembling those of *Rudbeckia*, which similarity prevents their introduction to the flower garden. *H. autumnale*, the only native species, popularly known as Sneeze Weed, is a showy plant, growing from two to three feet high. It is common Southward.

Helianthemum. Sun Rose. From *helios*, the sun, and *anthemon*, a flower. *Linn. Polyandria-Monogynia.* Nat. Ord. *Cistaceæ.*

Low shrubs, generally used for planting on rock-work, and strongly resembling the Cistus or Rock Rose. As most of the species are rather tender, they require protection during winter. For this reason they are either grown in pots, which are placed on the rock-work among the stones, or taken up and re-potted in winter, to be planted out again in spring. They are generally increased by seeds, which ripen in abundance.

Helianthus. The Sun Flower. From *helios*, the sun, and *anthos*, a flower; in reference to the common but erroneous opinion, that the flowers always turn their faces toward the sun. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

An extensive genus of hardy annuals and herbaceous perennials. The annual of this name, *H. annuus*, though a native of Peru, is of the hardiest of its kind, as it only requires sowing in the open border. The flowers are immense in size, averaging a foot in diameter; color yellow with a dark disk. Immense as these flowers are, fashion has decreed that they be worn by many of the ladies at many of the summer resorts at the present writing. It is not, however, suitable for any situation, unless there be abundance of room, on account of the large size of its stalks and leaves. The perennial kinds are much smaller, and very ornamental. They are quite hardy. Several of the annual species are extensively grown in marshy districts, because

they are supposed to absorb malaria. *H. tuberosus* is the well-known *Jerusalem Artichoke.* There are a large number of species common throughout the United States. California furnishes a species with very large double flowers, one of the best under cultivation.

Helichrysum. Everlasting Flower. From *helios*, the sun, and *chrysos*, gold; in allusion to the brilliant flowers. *Linn. Syngenesia-Polygamia-Superflua.* Nat. Ord. *Asteraceæ.*

The genus consists of annuals, hardy herbaceous perennials, and evergreen shrubs, the two latter rarely met except in botanical collections. The common yellow Everlasting, *H. bracteatum*, is a hardy annual that only requires sowing in the open border. *H. bicolor* is a very slight variety, merely differing in having the outer petals tipped with copper color; but *H. macranthum* has white flowers tipped with pink, and is very handsome. This species is a native of the Swan River colony. It may either be sown in the open ground in April, to flower in autumn, or in a hot-bed in February, to plant out in May.

Helcia. From *helcium*, a horse-collar; in reference to the curious formation of the flowers. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

H. sanguinolenta, the only species, is a beautiful terrestrial Orchid from the Peruvian Andes. Its flowers are produced in great profusion on single stalks from the base of the bulbs; the sepals and petals yellowish, beautifully marked with reddish brown; lip large, white, marked with purplish crimson. It requires to be grown in a cool house. Increased by division.

Heliconia. From *Helicon*, a hill consecrated to the Muses; from its affinity to the genus Musa. *Linn. Pentandria-Monogynia.* Nat. Ord. *Musaceæ.*

A genus of interesting plants from the West Indies and South America. Their fruit is eaten by the natives, though inferior to the Banana. It requires the same general treatment as the *Maranta*, but is too large for general green-house cultivation. Propagated by division of plant.

Heliophila. From *helios*, the sun, and *phileo*, to love; referring to the sunny aspect where they delight to grow. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

Beautiful little annual plants, natives of the Cape of Good Hope, generally with blue flowers, and very long, slender stems. The seeds should be sown on a hot-bed in February, and the plants planted out in a warm open situation in May.

Heliotrope. See *Heliotropium.*

Heliotropium. Heliotrope. From *helios*, the sun, and *trope*, twining; in reference to the curled or twining flower branch. *Linn. Triandria-Monogynia.* Nat. Ord. *Ehretiaceæ.*

This genus of interesting plants consists of hardy and tender annuals and green-house shrubs. Of the latter, *H. Peruvianum* is the well-known Heliotrope, a general favorite from its delicious fragrance. It grows freely in the open border. After the first of September, and until killed by frost, the plant is a complete mass of bloom. It is also largely grown in the green-house for cut flowers in winter. Propagated by cuttings. Introduced from Peru in 1757.

Helipterum. From *helios*, the sun, and *pteron*, a wing. *Linn. Syngenesia-Polygamia-Superflua.* Nat. Ord. *Asteraceæ.*

An extensive genus, separated from *Helichrysum*, with which it was formerly classed. The species, commonly known as Everlasting Flow-

ers, are tender annuals from South Africa, Australia, and Tasmania. The name "Everlasting Flower" is promiscuously applied to the plants of this genus and their allies. The arrangement of them in bouquets and floral designs is an extensive business in France and Germany. They grow freely from seed, and thrive best in a light dry soil, made tolerably rich. Introduced from Swan River in 1863.

Hellebore. See *Helleborus.*

Helleborus. Hellebore. From *helein*, to cause death, and *bora*, food; in reference to its poisonous quality. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

This genus consists of hardy herbaceous perennials, growing best under the shade of trees. The "Christmas Rose," *H. niger*, is one of the most interesting plants belonging to this genus, on account of its flowering in winter or very early in spring, before almost every other flower. If grown in a frame it will be true to its name, and flower freely during the Christmas holidays. It is increased by division of the roots. Introduced from Austria in 1596.

Helmia. In honor of *Dr. C. Helm*, a German ecclesiastic. *Linn. Diœcia-Hexandria.* Nat. Ord. *Dioscoreaceæ.*

A genus of handsome climbers, allied to the *Dioscorea* or Yam, and requiring the same treatment.

Hemerocallis. Day Lily. From *hemera*, a day, and *kallos*, beauty; alluding to the beauty and duration of the flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Strong perennial plants, with yellow or copper-colored flowers. They are perfectly hardy, and thrive best in a moist, shady situation. The more common sorts are unworthy of cultivation. *H. flava*, a native of Siberia, has beautiful clear yellow flowers, borne in clusters on tall scapes. If in a shady border they remain some time in flower. Propagated by division of root.

Hemionites. From *hemionos*, a mule; supposed to be barren. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of Ferns, with simple palmate fronds, natives of the tropics of both the New and Old Worlds. They are exceedingly interesting plants for the hot-house, where they must be grown. They are increased by division. Introduced in 1798.

Hemlock. See *Sicuta* and *Conium.*

Hemlock Spruce. See *Abies.*

Hemp. See *Cannabis.*

Henbane. See *Hyoscyamus.*

Hen and Chicken Daisy. See *Bellis perennis*

Hen and Chickens. A popular name for one of the Houseleeks, *Sempervivum soboliferum.*

Hepatica. From *hepaticos*, relating to the liver; referring to the lobed leaves. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

A small genus of hardy herbaceous perennials, one of our earliest "wild flowers," and very common in the woods throughout the Eastern and Northern States. It succeeds well in a shady border.

Heracleum. Cow Parsnip. From *heracles*, a plant consecrated to Hercules. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

A genus of large, coarse-growing, hardy perennials and biennials, bearing large umbels of white flowers. They are all too weedy in appearance for the flower garden, being suitable only for large masses in rocky places difficult to cultivate.

Herbertia. Named after *Dr. Herbert*, Dean of Manchester, a distinguished investigator of bulbous plants. *Linn. Monadelphia-Triandria.* Nat. Ord. *Iridaceæ.*

Very pretty species from South America, nearly hardy, requiring only the protection of the frame. It does well grown in pots. The flowers resemble the Iris, and are of various colors, blue and white predominating. Propagated by offsets. Introduced in 1830.

Herb Robert. See *Geranium Robertianum.*

Hercules' Club. See *Aralia spinosa.*

Herd's Grass. The New England name of *Phleum pratense.*

In Pennsylvania *Agrostis vulgaris* is commonly called Herd's Grass.

Heron's Bill. See *Erodium.*

Herpestis. From *herpestes*, a creeping thing; in reference to the creeping stems. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

An extensive genus of herbaceous perennials, chiefly aquatics, common throughout all tropical countries. There are also several species found in marshy places in the Southern and Western States. The species are mostly uninteresting. *H. reflexa*, a species of recent introduction, is a valuable plant for the aquarium.

Herrania. Derivation of name not given. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Byttneriaceæ.*

This genus consists of three or four species of evergreen trees, natives of South America, and one from Australia. They have palm-like heads, composed of large digitate leaves. They are very showy, but too large for general green-house cultivation.

Hesperantha. Evening Flower. From *hesperos*, the evening, and *anthos*, a flower. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A genus of Cape bulbs closely allied to the *Ixia.* The species are remarkable for expanding their sweet-scented flowers in the evening; hence their name. The flowers are mostly white, sometimes stained on the outside with purple or brown. Propagated by offsets. Culture same as *Ixia.* Introduced in 1825.

Hesperis. Rocket. From *hesperos*, the evening; the Rockets being sweeter toward evening. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

These flowers, though very common, are rarely well grown, as they require a great deal of care to bring them to perfection. They are all perennials; and as soon as they have done flowering they should be taken up and transplanted into fresh and very rich soil, which must be of a light and friable nature. Thus treated, the double white and double purple varieties of *Hesperis matronalis* will attain extraordinary size, and will flower splendidly. Propagated by seeds or division of roots.

Hesperoscordum. Literally, the Onion of the West; from *hesperos*, the west, and *skordon*, garlic. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of Californian bulbs, allied to the *Allium*, with large and showy flowers, blue and white. They have a strong smell of garlic, that is a barrier to their introduction to the flower garden.

Heterocentron. From *heteros*, variable, and *kentron*, a sharp point. *Linn. Octandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

A genus of free-flowering under-shrubs from Mexico. There are but two species, one, *H. album*, with white, the other, *H. roseum*, with crimson-purple flowers, produced in axillary or

terminal clusters. They make very desirable plants for winter blooming. Propagated by cuttings.

Heuchera. Alum-root. Named after *Professor Heucher*, a German botanist. *Linn. Pentandria-Digynia.* Nat. Ord. *Saxifragaceæ.*

A genus of very handsome herbaceous perennials, natives of this country and Siberia. The leaves are entire, from the center of which the flower scape arises from one to three feet high, with terminal panicles of greenish or purplish flowers. The root of *H. Americana* is so astringent that it is called Alum-root. Propagated by division of the roots in spring.

Hexacentris. From *hex*, six, and *centron*, a spur; alluding to two of its stamens having one spur each, and two of them two spurs each. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Acanthaceæ.*

A small genus of green-house evergreen shrubs, of climbing habit, with dentate leaves. The flowers are purple or yellow, produced in many flowered terminal or axillary racemes in June. They are natives of India, and are rarely seen in collections. Propagated by cuttings.

Hibbertia. In honor of *George Hibbert*, a distinguished promoter of botany. *Linn. Polyandria-Trigynia.* Nat. Ord. *Dilleniaceæ.*

Green-house evergreen shrubs, from New Holland and the Cape of Good Hope. There are more than fifty species included in this genus. Most of them are small, heath-like, tufted shrubs, or of a slender trailing habit; a few are climbing shrubs. Their flowers are yellow, borne at the ends of the branches, and generally give out a very unpleasant odor. *H. dentata*, a climbing species, is one of the most showy, and grows six or eight feet high. *H. volubilis*, the largest species of the genus, has a stiff climbing stem and pale yellow flowers two inches across, but most disagreeably scented. Propagated from cuttings of half-ripened shoots in spring. Introduced in 1823.

Hibiscus. Virgil's name for the Marsh-mallow. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

An extensive genus, consisting of annuals, perennials, and hardy and green-house shrubs. All the kinds bear very showy flowers, and deserve to be extensively cultivated. *H. rosa Sinensis pleno* produces large double flowers, scarlet and yellow, or buff, requiring simple green-house treatment. A singular freak of this species is, that orange and crimson flowers are occasionally seen on the same plant. *H. Syriacus* (Althæa) is one of our most beautiful hardy shrubs, the more valuable as it is a free flowerer; will grow almost anywhere, and propagates freely by seeds, layers, and cuttings. There is a pretty variegated leaved variety of *H. Syriacus*, quite hardy, introduced by the late Robert Buist, of Philadelphia, Penn. The varieties of this species are used for hedges in many places along our coast, where the soil is too poor for any other shrub to thrive. *H. Moscheutos* is abundant in marshy places along our coast. The flowers are a light rosy pink color, sometimes nearly white, five to six inches in diameter, borne in great numbers on a scape three to four feet high. This species improves in size of plant and color of flower by removing it from its habitat to a dry situation in the border. *H. Californica* is a strong growing species, bearing immense pure white flowers, and one of the most valuable plants of recent introduction. The perennials are propagated by seeds or division of roots. The annuals are showy and

grow readily from seed. *H. esculentus*, or *Abelmoschus esculentus* of modern botanists, is the Okra of the gardens, a tender annual from Central America and the West Indies. In the latter it is known as Gombo, and is extensively grown for the seed pods, which are used as a vegetable. The unripe pods are added to soups to render them more mucilaginous. They are also pickled like capers, and make an excellent salad. Okra may be raised by sowing the seed in spring as soon as the ground is warm. The dwarf varieties are preferable, being more productive, and requiring less space for their development. The soil should be rich to make tender pods.

Hickory. See *Carya.*

Hieracium. Hawkweed. From *hierax*, a hawk; being supposed to sharpen the sight of birds of prey. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A large genus of free-flowering, handsome herbaceous perennials, quite hardy, and well adapted for planting among rock-work, or near the front of large groups of mixed plants; the genus also contains a very beautiful annual suited for growing in masses; this is perhaps better known by the English name of the genus, Hawkweed. The flowers of nearly all the species are yellow, several of them are indigenous and common, but notwithstanding are well deserving the little attention necessary to keep them in the neat order requisite in the flower garden. Most species are from Central Europe, and have long been cultivated as garden flowers.

Hindsia. Named after *R. B. Hinds*, a zealous botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

Green-house evergreen shrubs from Brazil. Some of the species are plants of great beauty. *H. violacea* bears clusters of ultra-marine flowers two inches long, very showy. Propagated by cuttings. Introduced in 1844.

Hippeastrum. Knight's Star Lily. From *hippeus*, a knight, and *astron*, a star; referring to one of the species. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

This may, with justice, be termed the most noble and showy section of the family to which it belongs. The flowers are variously colored; some species have them entirely crimson, while others are white, abundantly streaked with red or crimson. The plants require the same treatment as Amaryllis. This genus was formerly classed with the Amaryllis, but was separated from it some years ago by the Rev. W. Herbert, who, in fact, reconstructed the whole family. See *Amaryllis, Sprekelia, Vallota*, etc. Propagated by offsets. Introduced from Lima in 1836.

Hippurus. Mare's Tail. From *hippus*, a mare, and *oura*, a tail; the stem resembles a mare's tail, from the crowded whorls of very narrow, hair-like leaves. *Linn. Monandria-Monogynia.* Nat. Ord. *Haloragaceæ.*

A very curious aquatic plant, found sparingly in ponds and springs from New York to Kentucky and northward. Scientists say the plant absorbs a large quantity of inflammable air, which assists in purifying the putrid air of marshes. It is a favorite food of wild duck.

Hoary Pea. See *Tephrosia.*

Hobble-bush. A common name for one of the *Viburnums.*

Hog Plum. See *Spondias.*

Hog-weed. A vulgar name for *Ambrosia artemisæfolia.*

HOL

Holcus. From *helko*, to extract; the original plant was supposed to possess the power of extracting thorns. *Linn. Polygamia-Monœcia.* Nat. Ord. *Graminaceæ.*

A genus of grasses that have soft, woolly herbage, mostly natives of Great Britain. They are of but little value. *H. lanatus* is common in our moist meadows, having become naturalized from Europe. It is popularly known as Velvet Grass.

Holy Ghost Plant. See *Peristeria elata.*

Holly. See *Ilex.*

Hollyhock. See *Althæa.*

Holy Grass. A common name applied to *Hierochloa*, a genus of sweet-scented grasses, that are strewn before the church doors on saints' days, in the North of Europe.

Holy Rose. See *Anastatica.*

Holy Thistle. See *Carduus.*

Homalonema. From *homalos*, regular, and *nema*, a filament. *Linn. Monœcia-Polyandria.* Nat. Ord. *Araceæ.*

A small genus of herbaceous plants, with heart or arrow-shaped leaves, and flowers resembling the *Richardia.* They are natives of China. *H. cordata* is occasionally grown in green-houses, and requires the same treatment as the *Richardia. H. aromatica* has an agreeable aromatic odor, and its root is supposed by the natives to possess medicinal properties.

Homeria. Named after *Homer*, the distinguished father of epic poetry. *Linn. Monadelphia-Monogynia.* Nat. Ord. *Iridaceæ.*

A small genus of pretty flowering bulbs from the Cape of Good Hope, and formerly included in the genus *Morea.* They succeed well in the open border, but require the protection of a frame during winter. Propagated by offsets, that should be taken off in September.

Honesty. See *Lunaria.*

Honey Flower. See *Melianthus.*

Honey Garlic. See *Nectaroscordum.*

Honey Locust and Honey Bean. See *Gleditschia.*

Honeysuckle. See *Lonicera.*

Honey Wort. See *Cerinthe.*

Hoop Petticoat. See *Corbularia* and *Narcissus bulbocodium.*

Hop. See *Humulus.*

Hop Hornbeam. See *Ostrya.*

Hordeum. Barley. According to Bodæus, the name is derived from *hordus*, heavy; because the bread made from Barley is very heavy. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

This genus is one of the most valuable of all the natural order to which it belongs. The most useful of the species is *H. vulgare*, the common Barley, which see. *H. jubatum*, Squirrel-tail Grass, is a native species, and is common on the shores of the great lakes. It is a species without any special interest.

Horehound. See *Marrubium.*

Horkelia. Named after *J. Horkel*, a German botanist. *Linn. Decandria-Monogynia.* Nat. Ord. *Rosaceæ.*

Hardy herbaceous perennials, found in California in 1826. They are desirable plants for the garden, bearing white flowers, and having foliage finely cut like Potentilla, to which it is allied. Propagated by seeds or division.

Horn Poppy. See *Glaucium.*

Horse Balm. See *Collinsonia.*

Horse Chestnut. See *Æsculus.*

Horse Mint. See *Monarda.*

HOY

Horse Nettle. A local name of *Solanum Carolinense.*

Horseradish Tree. See *Moringa.*

Horseradish. *Cochlearia armoracea.* This plant is a native of the marshy districts of Great Britain, whence it was introduced into our gardens at an early day, and from the gardens it has escaped into moist, waste places, in various parts of the country. The generic name is derived from *cochlear*, a spoon; from the spoon-like, or concave leaves of some of the species. As a condiment, the Horseradish is in general use, and is considered stimulating to the digestive organs. It is extensively grown by the market gardeners in the vicinity of New York, where it has long been considered one of the most profitable crops. The soil most conducive to it is a light, rich loam.

Hoteia Japonica. See *Spiræa Japonica* and *Astilbe barbata.*

Hottonia. Water Violet. Named after *P. Hotton*, a Dutch botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Primulaceæ.*

Hardy aquatic or marsh plants. *H. inflata* is common in pools and ditches from New England southward. *H. palustris*, the Water Violet, is a singular and beautiful plant, common in pools in many parts of England. The leaves grow wholly under water; from them there arises a long flower stalk bearing a pyramid of blue or white flowers, which are disposed in whorls. It is a very interesting plant for the aquarium.

Houlletia. Named after *M. Houllet*, a French gardener. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of very handsome epiphytal Orchids, natives of Brazil. The genus is related to *Stanhopea*, and requires the same treatment.

Hound's Tongue. See *Cynoglossum.*

Houseleek. See *Sempervivum.*

Houstonia. Named in honor of *Dr. W. Houston*, an English botanist. *Linn. Tetrandia-Monogynia.* Nat. Ord. *Rubiaceæ.*

This elegant genus of small flowering plants is found throughout the Northern and Western States. They are well adapted for flower borders, rock-work, or shaded beds. They thrive best in a moist situation. The colors of the flowers are white, blue, scarlet, and purple. Herbaceous perennials, popularly known as *Bluets.* Propagated by division of roots.

Hovea. Named after *A. P. Hove*, a Polish botanist. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of handsome, blue-flowered evergreen shrubs from New Holland. "*H. Celsi* is one of the best known, and a beautiful green-house plant, flowering, like most of the species, in the spring. This plant exhibits the peculiarity of the flower buds of the preceding year appearing at the base of those expanded during the present: a common condition of leaf buds, which are always visible the season preceding their expansion, but not frequently so with flower buds, which, though they may be formed several years before their development externally, generally remain concealed till the period of their unfolding." The flowers are pea-shaped, axillary, on short peduncles. Propagated by seeds. Introduced in 1818.

Hoya. Wax Flower. In honor of *Thomas Hoy, F.L.S.*, gardener to the Duke of Northumberland at Sion House, England. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

The most common species, *H. carnosa*, has curious wax-like flowers, from which drops a sweet, honey-like juice. It is a hot-house climber, which requires a light rich soil, and is propagated by cuttings, which require an average temperature of not less than 75° to root freely. It is sometimes grown in green-houses, in a warm situation, exposed to the sun. It makes an excellent plant for a warm sitting-room, as it grows freely without direct light. Introduced from Asia in 1802.

Huckleberry. Whortleberry. The popular names of the genus *Gaylussacia*, of which there are several species. *G. dumosa*, the Dwarf Huckleberry, *G. frondosa*, the Blue Huckleberry, and *G. resinosa*, the Black Huckleberry, are common throughout the United States, the latter being the *Huckleberry* of the Northern States.

Hugelia. Named after *Baron Hugel*, of Vienna. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

A small genus of hardy annuals from California. The flowers are blue and yellow. Propagated by seeds. First discovered in 1833.

Humea. Named after *Lady Hume. Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

Elegant biennial plants, which should be sown on a slight hot-bed in spring, then potted off and kept in the open air during summer, and in the green-house during winter, to be finally planted in the open border in May the second year. If the plants are re-potted three or four times during the course of the first summer, always into only a little larger pots, they will become so much stronger before they are finally planted out as amply to repay the additional trouble. *H. elegans*, the only species, has a peculiar but delightful odor. It was introduced from New South Wales in 1800.

Humulus. The Hop. From *humus*, the ground; creeping on the ground if not supported. *Linn. Dioecia-Pentandria.* Nat. Ord. *Cannabinaceæ.*

There is but one species of the genus, *H. lupulus*, the common garden Hop. It is indigenous both in Scotland and Ireland, and has been under cultivation in Europe from a very early period. It was well known by the Romans, and is mentioned by Pliny under the name of *Lupus salictarius*. It was introduced from Flanders into England in 1524. Its cultivation, however, met with violent opposition; petitions to Parliament were presented against it, in which it was stigmatized as "a wicked weed that would spoil the drink and endanger the people." The Hop, like all the dioecious family, bears its flowers on separate plants; the female plant, therefore, is alone cultivated. The Hop is increased by cuttings from the most healthy of the old shoots; two buds are required, one beneath the ground, from which will spring the roots, and from the other the stalk.

Hungarian Millet. See *Panicum.*

Huntleya. Named after the *Rev. Mr. Huntley*, a zealous collector of plants. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids, natives of South America. The genus is closely related to *Zygopetalum. H. violacea*, from Demerara, is a very handsome species, its flowers being large and of an intense violet color, which is quite uncommon among Orchids. This species is also known as *Bollea violacea*, and *Pescatoria violacea.* They should all be grown in pots. They are evergreen, and require but a short season of rest. They should be grown in the shade, and never allowed to become wholly dry. They are increased by division. Introduced in 1831.

Huntsman's Cup. One of the popular names of the *Sarracenia purpurea*, from a fancied resemblance.

Hyacinthus. The Hyacinth. The name of this genus originated with the fabulists of antiquity. It was pretended that Hyacinthus, a beautiful boy, was the son of a Spartan king, and the favorite of Apollo. Zephyrus, being envious of the attachment of Apollo and Hyacinthus, so turned the direction of a quoit which Apollo had pitched while at play, that it struck the head of Hyacinthus and slew him. The fable concludes by making Apollo transform the body of his favorite into the flower that bears his name. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

This plant, a native of the Levant, was first introduced into England in 1596, but it was known to Dioscorides, who wrote about the time of Vespasian. Gerarde, in his Herbal, published at the close of the sixteenth century, enumerates four varieties, the single and double blue, the purple, and the violet. In that valuable old book on gardening, "*Paradisi in Sole Paradisus terrestris*," published by John Parkinson in 1629, there are mentioned and described eight different varieties. He tells us "some are pure white; another is almost white, but having a show of blueness, especially at the brims and bottoms of the flowers; others again are of a very faint blush; some are of as deep a purple as a violet; others of a purple tending to redness, and some of a paler purple; some again are of a fair blue; others more watchet, and some so pale a blue as if it were more white than blue. After the flowers are past, there rise up great three-square heads, bearing round black seed, great and shining." During the two hundred and fifty years that have passed since the above was penned, there has been a steady improvement in the size, form, and color of the flowers of this plant. From the eight varieties of 1629, more than four thousand varieties have been produced and catalogued, from which number upward of two hundred varieties are subjects of extensive commerce. The Hyacinth is a universal favorite in the most extended application of the word. The number of its varieties is now fully equal to that of any other florist's flower. They are usually grown for forcing into flower in the dull, cheerless months of winter and early spring, when their delicately-colored flowers and rich fragrance lend a charm not otherwise to be found. They are equally desirable for planting in beds, or in the garden border. For forcing, the bulbs should be potted about the middle of September in five inch pots in rich, light earth, and placed in a cold frame or under a wall, where they can be covered with wooden shutters, or some similar contrivance, to keep off heavy rains; in either case they should be covered a foot thick with newly-fallen leaves, and being once well watered after potting, they may be left for a month to form their roots, when the most forward should be brought out, and, after re-potting into larger pots, according to the apparent strength of the bulbs, should be placed in a gentle heat. Some care is necessary in the application and increase of this, or the flowers will be abortive; it should not exceed 50° for the first three weeks, but afterward may be increased gradually to 60° or 65°, and if the pots are plunged into bottom heat the

same careful increase should be observed, or the points of the roots will infallibly be killed. One-third the depth of the pot is fully sufficient at first, and if the heat is brisk they should not be plunged more than half way at any time. When the flower stems have risen to nearly their full height, and the lower flowers of the spike are beginning to expand, the plants should be removed to a lower temperature, usually afforded by the green-house, and when the flowers are fully expanded, the plants can be taken to the sitting-room or wherever their presence is desired, observing to protect them from sudden changes or cold draughts of air, and the water given to them should be moderately warm. Hyacinths in glasses are an elegant and appropriate ornament to the drawing-room, and for this purpose occasion little trouble. The bulbs should be procured and placed in the glasses as early in the season as possible, keeping them in the dark until their roots are well started, after which the lightest position that can be afforded is the best; the water in which they grow should be changed twice or thrice a week, and in severe weather the plants must be removed from the window, so as to be secure from frost. For decorating the flower garden, the bulbs should be planted in October or the early part of November, in light, rich soil, at a depth of four inches from the crown of the bulb to the surface of the earth. It may be necessary to place sticks to them when in bloom, to prevent them from being broken by the wind, and this is all the attention they require till the foliage is withered, and the season has arrived for taking them up, when, instead of the usual practice of drying them at once in the sun, we would advise the Dutch method to be adopted, namely, to place them side by side on a sunny spot of ground, and cover them with about an inch of loose earth, to thoroughly ripen by the subdued heat imparted to the earth which surrounds them. Left in this position for a fortnight, they will become dry and firm, and an hour or two of sunshine will finish them properly for storing. The multiplication and growth of Hyacinths for sale is principally carried on out of doors in the vicinity of Haarlem, in Holland. The sandy soil, and moisture of both soil and climate in that country, are peculiarly favorable to the growth of the Hyacinth. Hundreds of acres are there devoted to the culture of these and kindred plants, and the Haarlem gardens are a gay sight from the early season of the year till far on in the summer. The process of multiplication is carried on by sowing the seeds, or by taking offsets from the parent bulb. By seeds new varieties only are obtained; it is by offsets the already known and valued kinds are increased. The bulbs are cut crosswise, and sprinkled with sand to absorb any superfluous moisture that may exude from the incisions. After a time they are planted in the earth, when numerous small bulbs are formed on the edges of these incisions. At the expiration of one season they are again lifted from the ground, and the numerous small bulbs, still only partially developed, are separated from the parent root and planted out *again* and *again*, year after year, for three or four years, before they become flowering bulbs of fine market quality. The white Roman Hyacinth is largely used for forcing for winter flowers by the florists of New York and all large cities. In New York alone upward of five hundred thousand bulbs are used during the winter, and the number is rapidly increasing each year. The flower spikes average four cents each at wholesale. By a succession of plantings, beginning in September, they are had in flower from November till May, and even later. The method pursued is similar to that for the Lily of the Valley. (See *Convallaria*, where the method is described.)

Hydrangea. From *hydor*, water, and *aggeion*, a vessel; referring to the cup form of the capsule or seed-vessel. *Linn. Decandria-Digynia.* Nat. Ord. *Hydrangeaceæ.*

A genus of showy shrubs, first introduced into England in 1790 by Sir Joseph Banks, who sent *H. Hortensia* from China, and since then a number of species have been sent to this country from Japan, among which is a climbing variety, (called also *Schizophragma Hydrangeoides,*) that will adapt itself to almost any situation. It is perfectly hardy, and, clinging like Ivy, will reach to the top of the highest walls or trees. Its beautiful white flowers are borne in abundance in axillary racemes. The flowers, or rather bracts, of *H. Hortensia* are pink, but in some soils they become of a deep blue. This change is effected artificially by using iron filings, incorporating them in the soil. A distinct white variety of *H. Hortensia*, known as "Thos. Hogg," is now very popular. To cultivate these plants in perfection, cuttings should be taken every season from the strongest shoots of the old plants in July or August; and after being struck, should be potted in rich earth, and encouraged to grow vigorously. A cold pit or frame, with frequent applications both of manure and plain water, will usually effect this, and cause them to become thoroughly established and strong before the winter. In this state they may either be forced in a gentle, moist heat through December and the spring months to bloom early, or kept cool for the production of summer flowers; in either case, it must be borne in mind that they require abundance of moisture when in an active state. *H. paniculata grandiflora*, introduced a few years since from Japan, is among the finest of all hardy shrubs for the lawn or the border. The flowers are white, and are produced in the greatest abundance in August, and remain till midwinter in a dried condition. *H. Otaksu*, also recently introduced from Japan, is of the habit of *H. Hortensia*, but a stronger grower. *H. stellata prolifera* is another new one.

Hydrocotyle. From *hydor*, water, and *cotyle*, a cavity; in reference to the plants growing in moist situations, and the leaves being hollowed like cups. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

A genus of uninteresting, marshy plants, common throughout the United States, and popularly known as *Water Pennywort*. There are about a dozen species.

Hymenocallis. From *hymen*, a membrane, and *kalos*, beautiful; referring to the membranous cup inside of the flower. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A genus of hardy and green-house bulbs, producing large white flowers similar to the Pancratium, to which class they are closely allied. They are found in great abundance in the swamps of Virginia and southward, and are sent to market in great quantities, and sold on the streets of all our large cities as "*Spanish Lilies.*" They are considered poor tenants for the green-house, as they do not pay *in beauty* for the required room and care.

Hymenodium. A synonym of *Acrostichum*, which see.

Hymenophyllum. Filmy-leaf Fern. From *hymen*, a membrane, and *phyllon*, a leaf. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of very beautiful Ferns, mostly natives of Chili and New Zealand, where they grow in moist ravines. The fronds are variable, some being very minute, and others of large size; some single, others compound. Several of the species are highly esteemed for cultivation in the green-house.

Hyoscyamus. From *hyos*, a hog, and *kyamos*, a bean; the fruit is eaten by hogs. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

Common Henbane, whose virtue consists in the supposed power it has of absorbing malaria that is generated around filthy habitations.

Hypericum. St. John's Wort. The name is said to be derived from *yper*, over, and *eicon*, an image; the superior part of the flower represents a figure. *Linn. Polyadelphia-Polyandria.* Nat. Ord. *Hypericaceæ.*

The pretty yellow-flowered shrubs and herbaceous perennials known by this name at the present day, were formerly, in ignorant communities, in high repute for driving away evil spirits; and on this account were generally planted near dwelling-houses. They were also highly valued for their medicinal properties, being believed to have a powerful effect in stopping blood and healing wounds. All the kinds will thrive under the drip of trees; and they will grow almost anywhere, though they prefer moisture and a moderate shade. They are found in almost all the temperate climates of the world; and they are propagated by seeds, and by dividing the roots.

Hypoxis. Star Grass. From *hypo*, beneath, and *oxys*, sharp; referring to the seed pod. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A very pretty bulb, found in meadows and waste places on Long Island and southward. The flowers are bright yellow inside, brownish outside, and borne in umbels on a scape about one foot high.

Hyssop. See *Hyssopus.*

Hyssopus. The derivation of this word is rather uncertain. By some it is said to be from the Hebrew *ezob;* others assert it to be from the Arabic *azzof. Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

The garden Hyssop is a native of Siberia and the mountainous parts of Austria. It was early introduced into the garden in this country, and has escaped in many places to the roadsides. It is considerably grown as a medicinal herb; it is not, however, esteemed except in domestic practice. This is not supposed to be the Hyssop mentioned in the Old Testament, and it has not been ascertained what plant is referred to. As it was one of the smallest plants, and "grew out of the wall," some have conjectured it to be one of the mosses.

I.

Iberis. Candytuft. From *Iberia*, ancient name of Spain, where the original species abounds. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

The genus consists of annuals, biennials, and perennials, all perfectly hardy and of the easiest culture. The common name *Candytuft* was given because they flower in tufts, and the first introduced species, *I. umbellata*, was brought from Candia. For early flowering of the annual varieties, the seed should be sown in the fall, and slightly protected from the sun, during winter, by leaves or any convenient dry mulching. They will come into flower in May. The plants of *I. coronaria*, Rocket Candytuft, should be thinned out to one or two feet apart each way; then, if in rich soil, they will completely cover the ground.

Ice Plant. See *Mesembryanthemum.*

Idesia. Derivation of name not given. *Linn. Pentandria-Monogynia.* Nat. Ord. *Flacourtiaceæ.*

I. polycarpa, a representative species of this genus, is a beautiful tree found in Japan, and said to be perfectly hardy around New York. Its leaves are from six to eight inches broad, and nearly round. The leaf stem is from six to twelve inches long, and bright red. The flowers are yellowish-green, in long drooping racemes, and very fragrant. The fruit is about the size of a Cherry, of an orange color, and edible.

Ilex. The Holly. Name originally from the Celtic, *oc* or *ac*, signifying a point; on account of the prickly leaves. *Linn. Tetrandria-Tetragynia.* Nat. Ord. *Aquifoliaceæ.*

An extensive genus of evergreen trees and shrubs, remarkable for their glossy, prickly foliage, and scarlet fruit, that remains on the shrub during the winter. They are well adapted for the lawn or for hedges, and grow best in a dry loam. *I. aquifolium* is the Holly of the English gardens, and *I. opaca* is the American Holly, which grows plentifully on Staten Island. It is to be regretted that the English Holly, the most beautiful of all evergreens, is unsuited to our climate, being in the Northern States too tender to withstand our winters, while the hot, dry summers of the Southern States are equally injurious to it.

Illicium. Aniseed Tree. From *illicio*, to allure; referring to the perfume. *Linn. Polyandria-Hexagynia.* Nat. Ord. *Magnoliaceæ.*

A small genus of evergreen shrubs or low-growing trees, with smooth entire leaves, exhaling, when bruised, a strong odor of Aniseed. They are natives of the extreme Southern States, Japan, Southern China, and Asia. *I. religiosum*, a Japanese species, is a small tree about the size of a cherry, and is held sacred by the Japanese. The leaves of this species, like those of *I. floridanum*, are said to possess poisonous properties. In Alabama the plant has acquired the name of Poison-Bay.

Imantophyllum. From *imas*, a leather thong, and *phyllon*, a leaf; alluding to the shape and substance of the foliage. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

Those with authority to speak of plants seem determined that the only species of this genus

shall have neither name nor home. Some insist upon calling it *Clivia nobilis*; others want to reverse it, and have *C. noblis* called *I. Altoni*. Then, again, for variety's sake, some prefer the orthography *Imatophyllum*. Most writers call *Imantophyllum* and *Clivia* synonymous. That they are closely allied we do not doubt. Having flowered them frequently, we find the flowers of *I. miniatum* (the only species) to be erect, and much larger than *Clivia nobilis*, the flowers of which are drooping and of a darker color. This species is propagated by division, and requires the same culture as the *Clivia*. Introduced from Natal in 1854.

Impatiens. Balsam, Silver Weed, Jewell Weed. Our native species of this genus are commonly known as Touch-me-nots, from the sudden bursting of the pods when touched. They are interesting annuals, common in damp grounds throughout the United States. The Balsams of our gardens are described under *Balsamina*, which see.

Imphee. See *Sorghum*.

Indian Bean. See *Catalpa*.

Indian Corn. See *Zea*.

Indian Cress. See *Tropæolum*.

Indian Cucumber Root. See *Medeola*.

Indian Currant. The common name of the fruit of the *Symphoricarpus vulgaris*.

Indian Fig. See *Opuntia*.

Indian Grass. See *Arundo*.

Indian Hemp. See *Apocynum*.

Indian Mallow. A common name of *Abutilon avicenna*, a troublesome, worthless weed in fields and waste places. It is a native of India, and was introduced into our gardens as an ornamental plant, but is now naturalized, and a nuisance.

Indian Millet. One of the popular names of *Sorghum vulgare*, to which species belong Broom Corn, Sweet Sorghum, and other cultivated varieties.

Indian Pink. See *Dianthus Chinensis*.

Indian Pipe. A common name of the *Monotropa uniflora*. See *Corpse Plant*.

Indian Plantain. The popular name of the genus *Cacalia*, common in rich, damp woods in most of the States.

Indian Poke. *Veratrum viride*, or White Hellebore.

Indian Rice. See *Water Rice*.

Indian Shot. See *Canna*.

Indian Strawberry. See *Fragaria*.

Indian Tobacco. See *Lobelia inflata*.

Indian Turnip. See *Arisæma*.

India Rubber Tree. See *Ficus elastica*.

Indigo. See *Indigofera tinctora*.

Indigofera. From *indigo*, a blue dyestuff; a corruption of *Indicum*, Indian, and *fero*, to bear; most of the species produce the well-known dye called Indigo. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ*.

An extensive genus of rather ornamental herbaceous perennials, tender annuals, and evergreen shrubs, grown almost wholly for the commercial value of the dye they produce. *I. tinctoria*, the species most commonly cultivated, is a native of the East Indies and other parts of Asia, but it has been introduced into, and become naturalized in, the Southern States, and was formerly extensively cultivated, as was *I. anil*, the West India Indigo, a stronger growing species, from both of which large quantities of Indigo were made. They are tender shrubs, growing from four to six feet high, with very pinnate leaves, and axillary racemes of pink and purple flowers. The shrubby species are propagated by cuttings, and the annuals from seeds.

Inga. The South American name of *I. vera*, adopted by Marcgraff. *Linn. Polygamia-Monœcia.* Nat. Ord. *Fabaceæ*.

A very extensive genus of ornamental shrubs and trees, numbering upward of one hundred and fifty species, natives of the warmer parts of South America, principally of Brazil and Guiana. The flowers are white, pink, crimson, etc., and are borne in variously-shaped spikes, or in nearly globular heads, growing singly or in clusters from the angles of the leaves. *I. pulcherrima*, a native of Mexico, is one of the most beautiful of the genus. The foliage is smaller than most of the species, and is very ornamental. The tassel-like flowers are of a bright crimson, and very showy. The shape of the flower-heads has given it the name of Bottle Brush. All the species are propagated from cuttings of young wood in summer. Introduced in 1822.

Ink-Berry. The fruit of *Ilex* (*Prinos*) *glabra*, an evergreen shrub, common on the Atlantic coast.

Ionopsis. From *ion*, violet, and *opsis*, like. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

A small genus of free-flowering, low-growing, beautiful little Orchids. They are difficult to manage, and are, therefore, seldom seen in collections.

Inula. A word of doubtful origin, but said to be a corruption of *Helenium*. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ*.

A genus of coarse-growing annuals and herbaceous perennials, not worth growing as flowering plants. *I. Helenium* is the *Elecampane*, common in the roadsides throughout the States.

Ipomœa. Morning Glory. From *ips*, bindweed, and *homoios*, similar; alluding to the twining habit of the plants. *Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ*.

A very extensive genus of twining plants, consisting of hardy and tender annuals, hardy tuberous-rooted perennials, and green-house perennials. They are remarkable for their showy flowers of white, pink, blue, and purple colors. *I. purpurea*, with its varieties, is the common Morning Glory of the garden. It is a native of South America, but has escaped from cultivation and become thoroughly naturalized. *I. pandurata*, Man-of-the-Earth, a native species, having very large tuberous roots, when well established will cover a very large space, and produce an immense number of very large, pure white flowers. They remain open much longer than the annual varieties. *I. Mexicana* and *I. Mexicana alba* both bear white flowers, though the seeds of one are black and of the other white. There would seem to be some confusion here. The tuberous-rooted species are increased by division, by cuttings, or from seeds. *I. noctiphyton* (which is sold under several other names) is a tropical perennial species, with immense pure white, sweet-scented flowers, and is probably identical with *I. Bona Nox*. The flowers, contrary to the habits of this splendid family, open at night instead of the morning. Being a free bloomer, the effect, especially on a moonlight night, is charming, particularly when it is growing on a tree. This species requires to be taken in during winter. Propagated by cuttings or from seeds. *I. Learii*, a tender perennial species, is perhaps the most beauti-

ful and useful of all the Ipomœas. It is useful in the open air for rapidly covering an outbuilding, a wall, or a trellis, and will flower abundantly from midsummer till fall. In the green-house it will bloom the whole year, but it is well to cut it in rather severely in September to keep it within bounds. The flowers, which are large, and of that pure sky-blue so rare among flowers, are produced in the greatest profusion. It is propagated by cuttings. We have tried many times to raise it from imported seed, but have never found it to come true. *I. leptophylla* is a recently introduced hardy perennial native species, with an immense tuberous root, of half-climbing habit, and a desirable plant. It is useful for grafting on. Propagated by division and from seed. *I. coccinea*, or Star Ipomœa, a comparatively recent introduction, bears a profusion of scarlet flowers, and is a very desirable plant. It is raised from seed. Nearly all the Ipomœas are popular plants, especially with those who have an eye for grace and beauty combined.

Ipomopsis. Standing Cypress. From *ipo*, to strike forcibly, and *opsis*, sight; alluding to the dazzling color of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

I. elegans and *I. pictu* are the only species. They are beautiful hardy biennials, natives of South Carolina and southward. They grow from four to six feet high, and are covered nearly their whole length with brilliant scarlet flowers. Seed should be sown in early summer, in a dry, sandy soil, where the water will not stand in winter; they will be greatly benefited with a slight mulching of leaves, not as a protection against cold, but against wet and sudden changes.

Ipsea. Derivation of name unknown. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

This genus of Orchids is represented by *I. speciosa*, a beautiful and rare species from Ceylon. The flowers are clear yellow with a carmine stripe on the lip. It requires the same treatment as the *Bletia*, which it resembles in habit. It was introduced in 1840.

Iresine. A synonym of *Achyranthes*, which see.

Iris. Fleur-de-Luce. From *iris*, the eye; referring to the variety and beauty of the flowers. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

There are three distinct kinds of Iris, besides innumerable species, hybrids, and varieties. These are, the fibrous-rooted kinds, which grow best in a fine sandy loam, and which increase rapidly every year by suckers from the roots; the tuberous-rooted kinds, which are very apt to be destroyed by snails, or to rot from too much wet; and the bulbous kinds, which should be taken up and replanted every second or third year, as the new bulbs, which are formed every season, are always directly under the old bulb; and thus in the course of a few years the bulbs descend so low as to be out of the reach of the air, and consequently incapable of vegetation. Thus it will be generally found that persons in the habit of growing Irises, are always complaining of losing their plants, while the real fault rests with themselves for not taking up their bulbs at the proper time. The bulbous and tuberous-rooted Irises succeed in any light and dry soil. The splendid Chalcedonian Iris is one of the tuberous-rooted kinds; and it not only requires a dry soil during winter, but to be allowed plenty of pure air during the whole period of its growth, or it will be very apt to damp off. Among the species of late introduction is *I. Kœmpferii*, from Japan. The plants are perfectly hardy, and are very free-flowering. The flowers are double and single, the colors pure white, purple, maroon, blue, and many with the various colors marbled with white. They grow readily in almost any situation, in full exposure to sun, or in partial shade. They are increased by division, or may be grown readily from seed, which, if sown in the open border, will make plants that will flower the second year. These are really grand plants, and worthy of a place in all gardens. That they do not flower until near midsummer, when the season of the common Iris is past, will be an additional recommendation to most lovers of plants.

Iron-weed. The popular name of *Vernonia Noveboracensis*, a common weed in moist grounds and along fence rows, growing from two to seven feet high, and bearing bright purple flowers.

Iron-wood. The popular name of two trees that furnish a hard, useful timber, the one *Ostrya*, which is also known as Hop Hornbeam, and the other *Carpinus*, the Common Hornbeam, or Iron-wood. Both are common in most of the States.

Ismene. Peruvian Daffodil. After *Ismene*, the daughter of Œdipus and Jocasta. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of very handsome bulbs from Peru, which require to be kept perfectly dry during winter, and free from frost. Plant out in spring as soon as the ground is warm and dry. They come into flower in June and July. Flowers pure white, mostly very fragrant, produced in an umbel on a spathe about two feet high. Propagated by offsets. Introduced in 1800.

Isoloma. From *isos*, equal, and *loma*, an edge; referring to the edges of the fronds. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of East Indian Ferns; but few, if any, have been introduced into the Fern-house.

Isolepis. From *isos*, equal, and *lepis*, a scale; alluding to the regularity of the scales. *Linn. Triandria-Monogynia.* Nat. Ord. *Cyperaceæ.*

A small genus of very pretty, low-growing, fine, rush-like grasses, widely distributed. Some of the species have been introduced into our green-houses, and cultivated for basket plants, a purpose for which they are admirably adapted. Propagated by division.

Isonandra. Gutta Percha Tree. From *isos*, equal, and *ander*, the male organ, or stamen; referring to an equal number of fertile and barren stamens. *Linn. Pentandria-Monogynia.* Nat. Ord. *Sapotaceæ.*

I. gutta, the species which yields Gutta Percha, is a large forest tree, growing sixty to seventy feet high, with a trunk two or three feet in diameter. It is a native of Borneo, Ceylon, and Malaya, where there are immense forests of this and kindred species. They are quite ornamental trees, but, from their size, only valuable for the Gutta Percha they produce.

Isotropis. From *isos*, equal, and *tropos*, turned; referring probably to the distinctly-formed veins in the flower. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

I. striata, from Swan River, constitutes this genus. It is a beautiful little green-house shrub, with a soft and slightly downy stem. The flowers are much like those of the *Chorozema*, clear orange yellow, with rich, deep crimson, forked veins. They are propagated by

cuttings of the young wood. Introduced in 1838.

Ivy. See *Hedera.*

Ixia. From *ixia*, bird lime; in reference to the clammy juice. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A genus of beautiful Cape bulbs, with narrow ensate leaves, and slender, simple, or slightly branched stems, bearing spikes of large showy flowers, various in color, and exceedingly attractive when fully expanded by sunshine. These flowers have a salver-shaped perianth, with a slender tube, and six-parted, spreading, equal limb, three stamens inserted in the throat, with filiform filaments and versatile anthers, and a three-celled ovary with numerous ovules, terminating in a filiform style, and three narrow linear conduplicate recurved stigmas. *I. viridiflora*, which has large sea-green flowers with black markings at the base of the segments, is a very singular-looking, as well as very beautiful plant. There are many species and some varieties, and the greater part of them are worthy of cultivation. They are half hardy, but with us should be grown in pots in the green-house; about midwinter they will begin to show their handsome flowers freely. When done flowering they should be dried off till September or October, which is the proper time to start them again. They grow well in a light loam with the addition of leaf mould and sand. Propagated by offsets. First introduced in 1757.

Ixiolirion. From *ixia*, and *leirion*, a lily; literally, Ixia-like Lily. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of rare and beautiful little hardy bulbs from Asia Minor. They have simple erect stems, with terminal clusters or racemes of sky-blue flowers. Propagated by seeds or offsets. Introduced in 1844.

Ixora. Named after *Iswara*, a Malabar deity, to whom the flowers of some are offered. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A genus of Indian and tropical African shrubs, with corymbs of handsome flowers of a scarlet, pink, or white color, and frequently having an agreeable fragrance. The history of *Ixora coccinea*, the best known species, is rather curious. It is a native of China and some of the East India islands, where it is worshiped as a sacred plant, and where it is said to form a small tree about six feet high, rising with a single stem, and having its head formed entirely of clusters of bright scarlet and yellow flowers, whence it has received the name of *Flamma Sylvarum*, or the Tree of Fire. This plant was first introduced in 1690; but it was soon lost, and its existence was even doubted till it was re-introduced about a hundred years afterward by the celebrated Dr. Fothergill. The Ixoras are really magnificent plants, and should be grown in a warm temperature. They are propagated from cuttings, and should be grown in a sandy loam and leaf mould. When re-potted, which should be done immediately after flowering, the plants will be benefited by being plunged into a moderate bottom heat, which induces them to root freely, and to form the growth quickly and with vigor, thus enabling them to become properly ripened before winter. In the spring, when the flower heads begin to appear, a liberal regimen should be adopted, and liquid manure occasionally applied. At this time, and, indeed, throughout the summer, the foliage should be frequently syringed, in order to keep it clear of insects, and to preserve its rich green and glossiness. As soon as the flowers are expanded, and onward till the growth is complete, the plants should be shaded from powerful light, and through the summer a moderately moist atmosphere of about 75° should be kept about them. In winter the ordinary attention required by hot-house plants will suffice. The taste for hard-wooded plants is on the increase. Among the best is the Ixora, which should be more generally grown.

J.

Jaborosa. From *Jaborose*, the Arabic for the Mandrake, an allied plant. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

A small genus of South American herbaceous perennials. The flowers are funnel-shaped, white or green. None of the species has any special attractions.

Jack-in-the-Pulpit. See *Arisæma.*

Jaca or Jack-Tree. The native name of *Artocarpus integrifolia*, the Bread Fruit of the East Indies.

Jacaranda. Its Brazilian name. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Bignoniaceæ.*

A genus of very handsome lofty trees, evergreens, with the elegant habit of the fine-leaved *Acacias.* They have bluish flowers in terminal panicles. Their size prevents their cultivation in the green-house.

Jacob's Ladder. See *Polemonium.*

Jacobæan Lily. See *Sprekelia.*

Jacquemontia. Named after *Victor Jacquemont*, a traveler in the East Indies. *Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ.*

A small genus of green-house evergreen twiners, intermediate between *Ipomœa* and *Convolvulus.* Natives of Mexico and the East Indies. Propagated by cuttings. Introduced in 1808.

Jalap. See *Exogonium.*

Jamaica Pepper. See *Pimenta vulgaris.*

Jamestown Weed. See *Datura.*

Japan Cedar. See *Cryptomeria.*

Japan Fern. See *Lygodium.*

Japan Medlar or Japan Persimmon. See *Diospyros.*

Japan Varnish Tree. See *Rhus.*

Jasmine. See *Jasminum.*

Jasminum. Jasmine. From *ysmyn*, the Arabic name. *Linn. Diandria-Monogynia.* Nat. Ord. *Jasminaceæ.*

The delicacy and fragrance of the flowers of the Jasmine have often afforded metaphor and theme to the poet. Among the species are found

equally desirable subjects for decorating the hot-house, the green-house, arbors, or other objects in the open air, and combining in every instance freedom and elegance in the general habit of the plants, with all that is desirable in the floral embellishments. The hot-house and green-house species should be frequently fumigated through the summer, as they are extremely liable to attacks from aphis and other insects. The hardy kinds grow freely in almost any situation, and only require to be kept trained in the desired form, without, however, reducing them to a rigidly formal outline, to make them most ornamental objects in almost any position. Most of the species are from the East Indies. *J. grandiflorum* is one of our best known winter-flowering plants, and is largely used in cut flower work. Propagated by cuttings, which root freely in a temperature of 70°. Introduced in 1629.

Jasione. An ancient name used by Theophrastus. *Linn. Pentandria - Monogynia.* Nat. Ord. *Campanulaceæ.*

A genus of hardy herbaceous perennials and annuals, mostly natives of Europe and North Africa. All of the species have very pretty blue flowers, though not of sufficient importance to warrant their introduction in the garden. *J. montana* is a pretty annual, common in the heathy and moorland districts of Great Britain. It is commonly known as Sheep's Scabious, from its resemblance to the Scabious, and from its abundance in sheep-walks.

Jatropha. From *iatros*, physician, and *trophe*, food; referring to its medicinal qualities. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Euphorbiaceæ.*

A genus of evergreen shrubs, natives of Cuba and South America, interesting from the fact of the roots being made into Cassava bread and Tapioca, while the juices of the plant are acrid poison. None of the species are valuable as flowering or ornamental plants. Included in this genus is one species, *J. urens*, common on the coast from Virginia southward. It is generally known by its popular names, Tread-Softly and Spurge-Nettle.

Jeffersonia. Named in honor of *Thomas Jefferson. Linn. Octandria-Monogynia.* Nat. Ord. *Berberidaceæ.*

J. diphylla, the only species, is a pretty little plant, common in woods from New York to Wisconsin and southward. It is sometimes called Rheumatism Root, from its supposed medicinal properties.

Jerusalem Artichoke. See *Helianthus.*

Jerusalem Cherry. See *Solanum capsicastrum.*

Jerusalem Sage. See *Phlomis.*

Jerusalem Thorn. See *Parkinsonia.*

Jewel Weed. See *Impatiens.*

Jimson Weed. See *Datura.*

Job's Tears. See *Coix lachryma.*

Joe-Pye Weed. Trumpet Weed. Popular names of *Eupatorium purpureum.*

Jointed Charlock. A name frequently given to the Wild Radish, *Raphanus raphanistrum.*

Joint Grass. A common name of one of our native grasses, *Paspalum distichum.*

Jonesia. Named after *Sir W. Jones. Linn. Heptandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A small genus of shrubs or low-growing trees inhabiting the East Indies. They have bright glossy leaves, about a foot long, made up of three to six pairs of leaflets. The flowers are bright scarlet, in terminal round clusters, resembling the *Ixora.* Some of the Japanese species have clusters six to eight inches across. They require to be grown in great heat. Propagated by cuttings. Introduced in 1820.

Jonquil. See *Narcissus.*

Joseph's Coat. See *Amaranthus tricolor.*

Jubæa. After *Juba*, ancient King of Numidia. *Linn. Monœcia-Polyandria.* Nat. Ord. *Palmaceæ.*

J. spectabilis, the only species, is the Cognito Palm of Chili. It has a tall, straight trunk, bearing a crown of large pinnate leaves, and branching spikes of dark yellow, distinct male and female flowers, inclosed in a double spathe. In Chili, a sweet syrup, or Palm-honey, is prepared by boiling the sap of this tree to the consistency of molasses, and it forms a considerable article of trade, being much esteemed for domestic use as sugar. The sap is obtained by felling the trees and cutting off the crown of leaves, when it immediately begins to flow, and continues for several months, until the tree is exhausted, providing a thin slice is shaved off the top every morning. Each tree yields about ninety gallons. The nuts, trunks, and leaves are used for various economic purposes. They require to be grown in great heat. Young plants are obtained from seeds.

Judas Tree. See *Cercis.*

Juglans. Walnut. From *Jovis*, the heathen god, and *glans*, a nut. *Linn. Monœcia-Enneandria.* Nat. Ord. *Juglandaceæ.*

A well-known genus of hardy, deciduous trees. *J. regia*, the common English Walnut or Madeira Nut tree, is a native of Persia, and was introduced into English gardens in 1562. This species makes a beautiful tree for the lawn as far North as New York, but it rarely ripens fruit. There are several specimens of this tree on the grounds of Mr. Manice, Queens, Long Island, having favorable situations, and they seldom fail of ripening a fair crop of nuts. There is also a long avenue of old trees of this Walnut in West Chester County, N. Y., and the crop seldom fails. *J. cinerea* is our common Butter-nut, and *J. nigra* the well-known Black Walnut.

Jujube. See *Zizyphus Jujube.*

Juncus. Rush, Bog-Rush. Linnæus derived the name from *jungo*, to join; in allusion to the first ropes having been made from rushes. *Linn. Hexandria-Monogynia.* Nat. Ord. *Juncaceæ.*

The Rush is a very extensive, and almost universally distributed genus of marshy plants. Some of the species are very troublesome to the farmer, when once started in moist meadows. The destruction of the grass is certain, unless a constant warfare is kept up. Some of the species, in their native countries, are of the greatest value. In Holland, the Rush is planted with great care on their sea embankments, to prevent, by its roots, the action of the tides from washing away the earth. When these Rushes have attained their full height, which is in summer, they are cut down, tied into bunches, dried, and taken into market, where they are wrought into baskets and other useful articles. In Japan the manufacture of Rush matting is carried to a great extent. For this purpose, *J. conglomeratus*, or hard Rush, is used; and for their best floor-mats, *J. effusis*, or soft Rush, is employed. These mats, which are at once carpets and the only beds used by the Japanese, are soft, elastic, and often three or four inches thick. They are very closely plaited, and the interstices afterward filled with rice paper. Some law appears to regulate the size of these mats, for, according to Thunberg, they are of precisely the same di-

mensions throughout all parts of the kingdom, with the exception of those in the imperial palace of Jeddo. The regulation size is six feet by three, with a narrow blue or black border. They make a lighter sort of matting of the same material, which is used as window-blinds, and to protect the transparent paper which forms a substitute for glass. Of some harder species they even make shoes for their horses, which come up to the pastern joint, and cover the hoof. Bags made of Rushes are extensively used in the Eastern countries. Sugar sent from the Mauritius is always in bags made of Rushes, which are very strong and durable. A very handsome plant of the Bulrush family has been lately introduced from Japan, with foliage as strikingly variegated as *Eulalia Japonica zebrina*. Like that plant, the variegation runs horizontally around the hollow leaves. The bands of bright yellow are about two inches apart, delicately shaded into the green, and the whole appearance of the plant is one of unique beauty. It may prove to be hardy. It was introduced here from Japan by Thomas Hogg, but sent to England for distribution. See *Scirpus*.

June Berry. See *Amelancher*.

Juniper. See *Juniperus*.

Juniperus. Juniper. From the Celtic *Juniperus*, rough. *Linn. Diœcia-Monadelphia.* Nat. Ord. *Pinaceæ*.

An extensive genus of evergreen trees and shrubs, the more conspicuous of which are *J. communis*, the common Juniper, indigenous in dry, rocky places in New Jersey and northward. The berries of this species are much used in the manufacture of gin. *J. Virginiana*, the well-known Red Cedar, is found in all parts of the country, but more particularly from Virginia southward. *J. Bermudiana*, Bermuda Cedar, is used for lead pencils as well as the Red Cedar, the latter being used for the best.

Justicia. Named after *J. Justice*, a celebrated Scotch horticulturist. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ*.

An extensive genus of tender annuals and biennials, green-house herbaceous perennials, and green-house shrubs. They are natives of the East Indies, with a few in South America and the West Indies. Many of the species are mere weeds. Some of the green-house shrubs are ornamental and desirable, their long spikes of red and purple flowers being very showy. They are easy of cultivation. Propagated by cuttings.

Jute. See *Corchoris*.

K.

Kadsura. The Japanese name. *Linn. Diœcia-Polyandria.* Nat. Ord. *Schizandraceæ*.

A small genus of half-hardy evergreen trailing plants, with white or yellow flowers. Natives of Japan. Some of the species are under cultivation, but are not of special interest.

Kæmpferia. Named after *Kæmpfer*, a German naturalist. *Linn. Monandria-Monogynia.* Nat. Ord. *Zingiberaceæ*.

A genus of East Indian herbaceous perennials, with singular tubular-shaped flowers, that appear before the leaves, from very short stems. The roots of some of the species have an aromatic fragrance, and are used medicinally, and for perfumes.

Kale. See *Borecole*.

Kalanchoe. The Chinese name of one of the species. *Linn. Octandria-Tetragynia.* Nat. Ord. *Crassulaceæ*.

A very pretty genus of succulent plants, natives of tropical Africa, but also found in tropical Asia, at the Cape, and in Brazil. They do well in a light sandy loam, and produce rather large flowers, usually in many-flowered paniculate cymes, the color being yellow, purple, or scarlet. The leaves are fleshy, opposite, sessile, or petiolate, entire cremate, or pinnatifid. They are very interesting plants, and worthy of a place in the green-house. *K. acutifolia* has divided bronzy leaves, and altogether is a beautiful plant. Propagated readily from cuttings placed in sand. First introduced in 1781.

Kalmia. Named after *Peter Kalm*, a Swedish botanist. *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ*.

A genus of evergreen shrubs, growing from four to ten feet high, common from Maine to Georgia, usually found on mountain sides, or dry waste places, but sometimes also along brook sides. *K. latifolia*, Calico Bush, is the common Laurel of the United States, and is certainly one of the most beautiful of evergreens, whether we regard the deep verdure of its foliage, or the abundance of its exquisitely elegant, delicate pink, rose, or nearly white flowers, produced from May to July. It is generally supposed that this shrub cannot be transplanted from the woods with any certainty of success, but this is a mistake. Take the precaution to prepare a rich bed or border, with a soil as nearly like the one you find them in as possible, and which is usually composed in a great measure of leaf mould; take up plants of a small size, being careful not to cut the roots, and not to let them get dry, and get them into the border as soon as possible after taking them up; then cut well back, and very few will fail to make elegant plants, which will flower freely the second year. After one removal they may be taken up and shifted as often as desirable, with as little difficulty or danger as any of our border shrubs. *K. angustifolia*, Sheep Laurel, Lambkill, is a dwarf-growing, narrow-leaved species, with smaller flowers, but of a bright crimson color. The leaves are generally supposed to be poisonous to sheep and lambs; hence the two common names.

Kalosanthes. A synonym of *Rochea*, which see.

Kansas Gay Feather. See *Liatris spicata*.

Kaulfussia. In honor of *Frederic Kaulfuss, M.D.*, Professor of Botany at Halle. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ*.

A small genus of beautiful little hardy annu-

als from the Cape of Good Hope. The flowers are of various colors, blue, rose, white, and violet, somewhat resembling an Aster; the ray florets curl curiously back after they have been expanded a short time. Their beauty is short-lived, as the flowers are generally all faded and the seeds ripened before the end of July. First introduced in 1819.

Keferstenia. A synonym of *Zygopetalum graminеum.*

Kenilworth Ivy. See *Linarea.*

Kennedya. Named in honor of *Mr. Kennedy,* of the firm of Lee and Kennedy, celebrated English nurserymen. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of free-flowering, evergreen green-house climbers, remarkable for their beautiful racemes of pea-shaped flowers, which are of various colors, scarlet, blue, purple, pink, and variegated. They are highly ornamental, and useful in the green-house for cut flowers. They are increased readily by cuttings of short side shoots, well hardened. Introduced in 1824 from New Holland.

Kentia. In honor of *Lieut.-Colonel Kent. Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A small genus of Palms, separated from *Areca,* chiefly on account of the shape and substance of the seed; in all other respects they are identical. *K. sapida* is the most southern known Palm, being found in New Zealand two or three degrees further south than any representative of the order in either hemisphere. The natives use the young flower spikes as an article of food. *K. Canterburyana* is an exceedingly ornamental plant, useful for decorative purposes. It is called in its native country the "Umbrella Palm." A number of the species are now under cultivation. Young plants are obtained from seeds.

Kentucky Blue Grass. See *Poa pratensis.*

Kentucky Coffee Tree. See *Gymnocladus.*

Kerria Japonica. An old favorite in the garden, with both single and double flowers, to which has lately been added a very pretty variety with variegated leaves. These have been transferred to the genus *Corchorus,* which see.

Kidney Bean. See *Phaseolus vulgaris.*

Kinnikinnik. Common name of *Cornus sericea.*

Kleinia. Named by Linnæus in honor of *James Henry Klein,* a German botanist. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A small genus of curious succulent plants from Africa. Some are of upright habit, and others trailing or creeping. A few have been introduced into the green-house, and are grown for basket plants. *K. articulata,* or Candle Plant, is very curious and easily grown. Propagated by cuttings.

Knight's Star Lily. See *Hippeastrum.*

Kniphofia. A synonym of *Tritoma,* which see.

Kœlreuteria. Named after *Kœlreuter,* a celebrated German botanist, the father of hybridizing plants. *Linn. Octandria-Monogynia.* Nat. Ord. *Sapindaceæ.*

K. paniculata, the only species, is a deciduous shrub or low-growing tree, a native of China. It has pinnate foliage with an odd leaflet. The flowers are yellow, disposed in terminal spreading clusters, and are succeeded by large bladdery capsules, which render the tree conspicuous till late in autumn. This tree is hardy in the vicinity of New York and southward.

Kohlrabi. See *Brassica.*

Knoxia. Named after *Robert Knox,* who lived many years in Ceylon. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of rather pretty, low-growing green-house evergreens. The flowers are small, white, or pink. Propagated by cuttings. Introduced from Bengal in 1828.

Koniga. Sweet Alyssum. In honor of *Charles Konig, F.R.S., L.S.,* Superintendent of the Natural History Department of the British Museum. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

K. maritima is a pretty and well-known hardy annual. *K. maritima major* has flowers nearly as large as Candytuft. Sow the seed in early spring. It usually sows itself, coming up freely where once sown. *A. maritima plena,* a double variety, is valuable for cut flowers. *K. maritima variegata* has variegated leaves, and is a pretty and useful plant. A more recent variety with double flowers has even finer variegation. The last three named are propagated by cuttings, as they do not seed.

Kopsia. Named after *Professor Kops,* the author of a Botanical Dictionary of reputation. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

K. fruticosa, the only species, is a native of Pegu, Japan. It is an exceedingly ornamental green-house evergreen shrub, producing flowers similar to the green-house species of *Vinca,* several times during the season. The color is red and extremely showy. It is increased by cuttings. Introduced in 1818.

Krameria. Named after the two *Kramers,* German botanists. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Polygalaceæ.*

A small genus of ornamental green-house evergreen shrubs. *K. triandra* is remarkable for its entire, obovate, acuminate leaves, covered on both sides with silky hairs. In Peru an extract, which is a mild astringent, is made from it. An infusion of the roots of one of the species is blood-red, and largely used in adulterating port wine. The species are natives of South America.

Kuhnia. Dedicated to *Dr. Kuhn,* of Pennsylvania, who brought the living plant to Linnæus. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A genus of hardy herbaceous perennials, of but little interest except in botanical collections. *K. eupatorioides* is common in dry soils from New Jersey to Wisconsin, and southward.

Kunthia. Named after *C. S. Kunth,* a Prussian botanist. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A rare Palm, of one species only, allied to Areca. It is a native of New Grenada. Propagated by seed. It grows freely with ordinary green-house treatment.

Krigia. Dwarf Dandelion. In honor of *Mr. David Kreig,* a German botanist. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A very pretty little annual, with flowers resembling miniature Dandelions. It is quite common in dry grounds from New York southward.

L.

LAB

Lablab. A genus of tropical pulse, more usually included in *Dolichos*, which see.

Labrador Tea. *Ledum latifolia.* This is a shrub growing from two to five feet high, common in swamps and bogs, North and West. The leaves were formerly used as a substitute for Tea, whence the common name.

Laburnum. See *Cytisus Laburnum.*

Lacæna. One of the names of *Helen*, applied because of the beauty of the plant. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A genus of epiphytal Orchids. *L. bicolor*, the original species, is a native of Guatemala, and has long, pendulous racemes of flowers of a greenish-yellow color, the lip marked with purple about the center. They require a hot-house, and should be grown in flat baskets or pans, in leaf mould and sphagnum moss. Increased by division in spring, after blooming. Introduced in 1843.

Lace Bark. See *Lagetta.*

Lace-leaved Plant. See *Ouvirandra.*

Lachenalia. Named after *M. de la Chenal*, a botanical author. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

An extensive genus of very interesting and showy bulbous plants from the Cape of Good Hope. *L. pendula*, *L. tricolor*, and *L. quadricolor* are the kinds mostly cultivated in the green-house. They have long lanceolate leaves, often spotted, and erect flower scapes bearing pendulous flowers, the yellow color predominating. They should be potted in October, in light fibrous soil, and only moderately watered until after flowering, then more freely until they show signs of ripening off. They should be kept in the pots dry during summer. Propagated by offsets. Introduced in 1774.

Lachnæa. From *lachne*, down, referring to the downy clothing of the flower heads. *Linn. Octandria-Monogynia.* Nat. Ord. *Thymelaceæ.*

An interesting genus of green-house evergreen shrubs from the Cape of Good Hope, all but one with white flowers. The heads of the flowers are usually covered with fine wool, giving them a singular appearance. They are increased by cuttings, and should be kept in shade during summer.

Lachnanthes. The Red Root. From *lachne*, wool, and *anthos*, a flower; in allusion to the flowers, which are woolly. *Linn. Triandria-Monogynia.* Nat. Ord. *Hæmadoraceæ.*

L. tinctoria, or Red Root, is common in sandy swamps from New Jersey southward. The roots were formerly used for a red dye, whence the popular name. "*L. tinctoria*, commonly known as Paint Root, abounds in the Southern States, and is said to have an important bearing on the agriculture of those States, from the singular fact claimed for it, that when its roots are eaten by white pigs, it fatally poisons them; while black pigs eat the roots with impunity; and hence the preponderance of black pigs in the Southern States. This extraordinary statement is made by Charles Darwin, who gives Dr. Jeffries Wyman as his authority. The same testimony has recently been given by Dr. P. Statesbury, of Clinch Co., Geo."—*American Agriculturist*, March, 1876.

LÆL

Lactuca. Lettuce. From *lac*, milk; referring to the milky juice. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

The native country of the Lettuce is unknown; and from what species the garden varieties originated is merely conjectural. According to Herodotus, it was in use 550 years before Christ; yet Pliny says the ancient Romans knew but one sort. In his time it was cultivated so as to be had at all seasons of the year, and even blanched to make it more tender. In the privy-purse expenses of Henry VIII., in 1530, is mention of a reward to the gardener of York Place for bringing "Lettuze" and Cherries to Hampton Court. Gerarde, in his Herbal, 1597, gives an account of eight sorts cultivated in his day. Parkinson, in 1629, says: "There are so many sorts, and so great diversitie of Lettice, that I doubt I shall scarce be beleeved of a great many. For I doe in this Chapter reckon up unto you eleaven or twelve differing sorts; some of little use, others of more, being more common and vulgar; and some that are of excellant use and service, which are more rare, and require more knowledge and care for the ordering of them, as also for their time of spending, as some in the spring, some in summer, others in autumne, and some being whited for the winter. For all these sorts I shall not neede many descriptions, but only shew you which doe cabbage, and which are loose; which of them are great or small, white, greene, or red, and which of them bear white seeds, and which of them blacke." We cannot quote the whole chapter, but cannot omit one of the "Vertues of the Lettice," viz.: "They all cool a hot and fainting stomacke." Loudon says: "*L. sativa* is well known as furnishing, among its numerous varieties, the best vegetable of the salad kind grown in the open garden. It is questioned by some whether the greater number of what are set down as species in this genus, are anything more than variations of one type; and, at all events, it is thought *L. virosa* is the parent of our cultivated sorts." All writers agree that the *Cos Lettuce* comes from one of the Greek islands bearing that name. It is by far the most delicately flavored of the whole class, though not well suited for our hot summers. The best kinds at present for our climate are "*Silesia*," "*Curled India*," and "*White Cabbage.*" Hundreds of acres of glass are devoted to the forcing of Lettuce in the United States. The variety used mostly for that purpose is known as "*Boston Market.*"

Ladies' or Venus's Slipper. See *Cypripedium.*

Ladies' Tresses. See *Spiranthes.*

Lady Slipper. See *Balsamina.*

Ladies' Smock. See *Cardamine.*

Lady Washington Geranium. A variety name for one of the large-flowered or fancy *Pelargoniums*, and for a long time in this country a common name for the whole of that class. It is to some extent still in use, though the variety bearing the name has long since been discarded; consequently it is improper to thus continue to use a specific name for a generic.

Lælia. Named by Lindley, who does not give the derivation. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

This is a lovely genus of plants, most of the species being compact in their growth, with evergreen foliage, resembling, in many respects, the genus *Cattleya*, to which some of them are equal in the beauty of their flowers. They produce their flowers, which are large, distinct in color, and very handsome, on spikes of varied length, from the top of their pseudo-bulbs. These plants merit a place in every collection, and will amply repay the cultivator for any care they may require; indeed, the *Lælias* are among our finest Orchids, whether for winter or summer flowering.—*B. S. Williams.* All the species are natives of Mexico and South America, and were first introduced in 1835.

Lagenaria. Bottle Gourd. From *lagena*, a bottle; referring to the shape of the fruit of some species. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Cucurbitaceæ.*

An East Indian species of Gourd, sometimes grown on account of its curious shape. Like most of the order, the pulp is poisonous. The common name does not indicate the shape of all the species, some being pear-shaped, some nearly round, and others egg-shaped. They should have a trellis or brush to run upon. Sow the seed at the same time as Melons and Squashes. Introduced in 1597.

Lagerstrœmia. In honor of *Magnus Lagerstrœm* of Gottenburgh. *Linn. Polyandria-Monogynia.* Nat. Ord. *Lythraceæ.*

A genus of handsome, free-flowering shrubs from India. *L. Indica* is commonly known as Crape Myrtle, and is a favorite half-hardy shrub. It can be planted out in the border in spring, and will bloom profusely during midsummer. At the approach of winter take it up, put it in a tub or box, and keep it in the cool part of the green-house or in a dry cellar, giving but very little water. There are several varieties of this species, having purple, pink, and white flowers. The latter is rather a shy bloomer, and is of smaller habit. Propagated by cuttings.

Lagetta. Lace Bark. Lagetto is the name of the species at Jamaica. *Linn. Octandria-Monogynia.* Nat. Ord. *Thymelaceæ.*

A genus of West Indian, tall-growing trees, interesting from the peculiar formation of the bark of some of the species. The inner bark of *L. lintearia* consists of numerous concentric layers of fibers which are interlaced in all directions, and thus presents a great degree of resemblance to lace, whence the common name of the tree.

Lagurus. From *lagos*, a hare, and *oura*, a tail; on account of the resemblance of its heads. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

L. ovatus, the only species, is a common weed, found in Guernsey and some parts of Asia.

Lalage. Named after *Lalage*, a gay, witty dame immortalized by Horace. *Linn. Monadelphia-Decandria.* Nat Ord. *Ebaceæ.*

A small genus of ornamental shrubs, natives of the southwest coast of Australia. The flowers are either yellow or mixed orange, violet, or crimson, and are produced in axillary clusters. They require the green-house, and are propagated by cuttings. Introduced in 1830.

Lambertia. Named in honor of *A. B. Lambert*, one of the most liberal botanists in Europe, and whose extensive herbarium was open to every man of science. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Proteaceæ.*

Very handsome green-house evergreen shrubs from tropical Australia. The flowers are mostly produced in terminal clusters, sometimes singly, the prevailing color being dark red, with occasionally an orange tint. Height of plant three to four feet. They are readily increased by cuttings, but must be grown with considerable care, the principal caution being against over-watering; any excess in that is fatal to them. Introduced in 1824.

Lamb's Lettuce or Corn Salad. See *Valeriana.*

Lambkill. See *Kalmia.*

Lamium. See *Dead Nettle.*

Lantana. Ancient name for Viburnum. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Verbenaceæ.*

An extensive genus of ornamental, free-flowering, tender shrubs, common from the West Indies to Brazil. The species are rapid growers, and most constant bloomers. They are readily increased by cuttings, and will grow freely in the garden, preferring a sunny situation. Many new varieties have been produced from seeds, but we do not think there has been much improvement on the species. First introduced from the West Indies in 1692.

Lapageria. Named after *Josephine Lapagerie*, wife of Napoleon I. *Linn. Hexandria-Monogynia.* Nat. Ord. *Philesiaceæ.*

L. rosea, and its white variety, are unquestionably the most beautiful green-house twining plants yet introduced. The stems are round, branching, and will grow to almost any required length, with proper treatment. The flowers are large, lily or bell-shaped, and produced on solitary one-flowered peduncles. *L. rosea* has deep rose-colored flowers, spotted inside with white. There has lately been introduced a double variety, the character of which has not yet been established. They should be grown in a house with a low temperature, and given plenty of air, water, and root room; the latter is a necessity. They do tolerably well grown in tubs, but are seldom seen in perfection except when turned into the border. The soil should be largely composed of leaf mould and sand. They are increased either by layers or from seeds, the latter being preferable; plants from cuttings rarely succeed. They are natives of Chili. Introduced in 1847.

Lapeyrousia. See *Peyrousia.*

Laportea. Wood Nettle. A genus of uninteresting native plants, allied to *Urtica*, which see.

Lappa. See *Burdock.*

Larch. See *Larix.*

Lardizabala. In honor of *M. Lardizabala y Uribe*, a Spanish naturalist. *Linn. Diœcia-Hexandria.* Nat. Ord. *Lardizabalaceæ.*

Half-hardy evergreen climbers, natives of Chili. *L. biternata*, the most beautiful of the species, has dark, glossy, evergreen foliage, and drooping spikes of deep purple flowers. In Chili a very tough fiber is obtained from its stems and made into cordage; and its fruit, containing a sweet-tasted pulp, is sold in the markets. This species would make a splendid creeping plant for covering walls in the Southern States, but would not be hardy north of Virginia.

Larix. Larch. From the Celtic, *lar*, fat; on account of the tree producing plenty of resin. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Pinaceæ.*

Larix Americana, the only species in this country, is a beautiful deciduous tree, growing to its greatest perfection in the more northern States and Canada, where it attains a height of from eighty to a hundred feet, with a diameter of from two to three feet. The wood of the American species is popularly known as *Hackmatack*,

or *American Black Larch*, and is superior to any of the species of Pine or Spruce for ship-building, for which purposes it is largely employed in Maine and the British Provinces. The trees are small and of but little value south of Maine. Its southern limits are the mountains of Virginia. It is not so fine an ornamental tree as *L. Europœa*, which is also a valuable timber-tree, and worthy of a place on the lawn. There are a number of varieties.

Larkspur. See *Delphinium*.

Larrea. In honor of *John Anthony de Larrea*, a Spanish promoter of the sciences. *Linn. Decandria-Monogynia.* Nat. Ord. *Zygophyllaceœ.*

L. Mexicana, the Creosote plant, is a shrub growing from four to six feet high, very abundant in some parts of Mexico, forming a dense and almost impassable scrub, particularly on the borders of the Colorado desert, where its luxuriant growth puts a stop to the drifting sand. Its appearance is a sure indication of a sterile soil, as nothing will grow beneath it, and its strong Creosote odor is so repulsive that no animal will touch it. It is with great difficulty that it can be made to burn, and it is consequently useless for fuel.

Lasiandra. From *lasios*, woolly, and *aner*, an anther; alluding to the hairy stamens. *Linn. Decandria-Monogynia.* Nat. Ord. *Melastomaceœ.*

A large genus of green-house evergreen shrubs, with handsome foliage, and producing large panicles of beautiful purple flowers. They are easily propagated from cuttings. Introduced from Rio Janeiro in 1836.

Lasthenia. Derivation of name unknown. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceœ.*

A small genus of hardy annuals from California. The flowers are pure golden yellow, making a very pretty border plant. The seed should be sown in autumn or early spring. Introduced in 1834.

Lastræa. Derivation unexplained. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceœ.*

An extensive genus of Polypodiaceous Ferns, formerly included in the genus *Aspidium*. They all require green-house treatment. Some of the newly-introduced species from Australia grow luxuriantly in the ordinary green-house. Like all of the order, a moist atmosphere is favorable to their perfect development.

Latania. Bourbon Palm. *Latanier* is the name of the plant in the Isle of Bourbon. *Linn. Diœcia-Monadelphia.* Nat. Ord. *Palmaceœ.*

A genus of fine middle-sized Palms, with plaited, fan-like fronds, with spiny leaf stalks. *L. Borbonica* is the most commonly grown in our green-houses, and makes a very beautiful plant for the lawn in summer. When grown in tubs or large pots, this Palm is the one best suited and most largely used for the decoration of hotel verandas. Thousands are now in use for that purpose. Exceedingly fine specimens of this beautiful Palm are now growing in the Botanic Gardens at Washington. *L. rubra*, from Mauritius, is a much smaller plant, and is remarkable for its red, livid leaves. The species are propagated by seed, which grows freely if given a mild bottom heat. They require but little attention in winter. They can be kept in the green-house during winter, and given but little water. In the summer give them plenty of heat and water; their growth will be in proportion to the amount of each given. Introduced in 1816.

Lathyrus. From *la*, to add to, and *thouros*, an

irritant; to increase excitement; the supposed qualities of the seeds. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceœ.*

A large genus of very beautiful, free-flowering climbing annuals and perennials, found in the temperate regions of both hemispheres. *L. odoratus*, the Sweet Pea of our gardens, is a native of Southern Sicily, and was first introduced into England in 1701. On account of its fragrance it is the most desirable of the species. There is now great diversity in the colors of the different varieties, some of late introduction being the best in cultivation; they include white, purple, black, scarlet, blue-edged, and striped sorts. The Sweet Pea delights in a heavy, stiff loam, and will not succeed in a light soil unless planted very deep, say five inches, and the earth well packed down around the plants. *L. latifolius*, of which there are three varieties, producing purple, rose, and white flowers, are pretty generally distributed throughout Europe. They grow from six to eight feet high when properly trained upon a trellis; and if planted in a moist soil will prolong their season of flowering nearly the whole summer. They are extensively used in New York and other large cities as cut flowers. *L. Magellanicus*, a perennial species from Cape Horn, is remarkable for the beauty of its foliage, as well as for its showy blue flowers. The perennials are propagated by root division and from seed. Seedlings do not usually get strong enough to flower well before the third year; they will, however, produce some flowers the second year. There is one perennial species, *L. tuberosa*, occasionally met in Europe, having edible tubers, which, if baked or roasted, are said to be great delicacies. The flowers of this species are borne in clusters on long peduncles; they are of medium size, and of a rosy-pink color. There are several other species under cultivation.

Lattice Plant. See *Ouvirandra.*

Laurel. See *Laurus.* Also *Gnidia*, the ancient name.

Laurel Magnolia. See *Magnolia.*

Laurestinus. See *Virburnum tinus.*

Laurus. Laurel. From the Celtic *laur*, green. *Linn. Enneandria-Monogynia.* Nat. Ord. *Lauraceœ.*

Under the common name of Laurel many different plants are met in fields and gardens, but the Sweet Bay, or Noble Laurel, *L. nobilis*, is the only one which is properly so called. It is a native of Southern Europe, and is a beautiful evergreen shrub or tree. In some localities it grows to the height of fifty to sixty feet, always retaining its shrub-like character. Its leaves have an agreeable aromatic, slightly bitter taste; its flowers are yellowish and inconspicuous, and its fruits are succulent, and of the size of a small cherry. The leaves, because of their agreeable flavor, are used in cooking and in various confections. The dried figs that are imported into this country are usually packed with these leaves. This tree is not hardy enough to resist the winters north of the Carolinas. Propagated by layers, root cuttings, or by seed.

Lavendula. Lavender. From *lavo*, to wash, in allusion to the use made of its distilled water. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceœ.*

Mostly undershrubs, natives of the south of Europe, but largely grown in England and France for the sake of their perfume, and for the oil, on which this property depends. The essential oil of Lavender is produced by distillation from the flowers, and is much prized for

its agreeable odor. When dissolved in spirits of wine, and mixed with other perfumes, it forms the much-appreciated Lavender Water. This oil is the essential element in the Sweet Spirits of Lavender of the druggists. *L. vera* is the species grown for these extracts, and is propagated by cuttings or from seed. *L. spica*, another species, yields the Oil of Spike. All the hardy species are ornamental.

Lavatera. Named after the two *Lavaters*, Swiss botanists. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

An extensive genus of herbaceous perennials, biennials, and annuals, common throughout Europe and Western Asia. They are mostly coarse-growing, bushy plants, of little merit. The annual species are rather showy, producing large purple flowers, suitable only for back grounds to other plants. The seed need only be sown where wanted to grow.

Lavender. See *Lavendula.*

Lavender Cotton. See *Santolina.*

Laxmannia. Named after *E. Laxmann*, a Siberian traveler. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of low-growing, green-house herbaceous plants, from New Holland. The flowers, in terminal heads on slender scapes six inches high, are either white or purple. They are increased by division of root. Introduced in 1824.

Lead Plant. See *Amorpha.*

Leather Flower. The common name of *Clematis Viorna.*

Leatherwood. See *Dirca.*

Ledum. Labrador Tea. From *ledon*, the Greek name of Cistus, which this genus resembles. *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ.*

A small genus of hardy, evergreen, white-flowering shrubs, natives of British America. See *Labrador Tea.*

Leek. See *Allium.*

Lemon. See *Citrus.*

Lemon Grass. A popular name of one of the species of *Andropogon.*

Lemonia. Named in honor of *Sir Charles Lemon.* *Linn. Pentandria-Monogynia.* Nat. Ord. *Rutaceæ.*

L. spectabilis, the only species, is a green-house evergreen shrub from Cuba, producing axillary clusters of beautiful rose-colored flowers in September. They require but little care during winter. Place them in the green-house, and give but little water. During summer they will require plenty of heat and water. Propagated by cuttings.

Lemon Verbena. See *Aloysia.*

Leonotis. Lion's Ear. From *leon*, a lion, and *ous*, an ear; some resemblance in the flower. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A small genus of annuals and green-house evergreen shrubs. Of the latter, *L. leonurus* is a magnificent species from the Cape of Good Hope, producing brilliant scarlet flowers. It requires a rough sandy loam, with plenty of air, and during the summer a liberal supply of water, when it will not fail to grow and flower finely. It is propagated by cuttings. The other species are scarcely worth growing. *L. cardiaca* is known in domestic medicine as Motherwort.

Leopard's Bane. See *Doronicum.*

Leopard Wood. See *Brosimum.*

Leopoldinia. Named after the late Empress of Brazil. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A small genus of Brazilian Palms, comprising three or four species, existing in considerable numbers on the Amazon and Rio Negro. The trees are of medium size, bearing terminal, smooth, pinnate leaves, and having the upper part of their stems covered with a copious network of fibers. *L. Piassaba* is one of the Palms which yield the Piassaba or Piacaba fiber, now so extensively employed by brush-makers as a substitute for bristles, and also for making the stout street brooms used in all large cities. Two distinct varieties of this fiber are recognized in commerce, one being a coarse kind obtained from *Attalea funifera* and imported from Bahia; and the other a finer kind brought from Para, the produce of the *Leopoldinia*, which is found growing in great abundance on the extensive plains between the Rio Negro and Oronoco Rivers, forming entire forests. It attains a height of from fifteen to forty feet, and the fiber, or beard, as it is usually called, which is the envelope of the young leaves, hangs down all round, and completely covers the trunk quite to the ground, except in very tall trees, the lower part of whose trunk is generally bare. The brushes made from this fiber are known in trade as Tampico, and for many purposes are considered superior to those made from bristles.

Lepanthes. From *lepos*, bark, or *lepis*, scale, and *anthos*, a flower; the plants of this genus have very small flowers, and grow upon the bark of trees. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A genus of the dwarfest of Orchids, with the habit of, and nearly related to, *Pleurothallis.* It can only be grown under a bell-glass, among damp moss, in a cool part of the house. Natives of Mexico and the West Indies. Propagated by division. Introduced in 1834.

Lepidium. Cress or Peppergrass. From *lepis*, a scale; in allusion to the shape of the pods, which appear like little scales. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

A very extensive genus of hardy annuals and perennials, found distributed throughout the temperate regions of the earth. The only species of interest are *L. sativum*, the common garden Peppergrass, whose nativity is attributed to Persia; and *L. Piscidium*, found in the Society and Sandwich Islands. This species, in common with many other plants, possesses properties that intoxicate fish, and the natives use it for that purpose. When thrown into the water it is eagerly eaten by the fish, which are, soon after eating it, rendered insensible, and float helplessly upon the water, and are easily taken. There are several native and naturalized species common in this country, all of them weeds.

Leptosiphon. From *leptos*, slender, and *siphon*, a tube; alluding to the tube of the flower. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

Handsome dwarf-growing California annuals. Some of the species make charming bedding plants. When planted in masses they form an entire sheet of pure white or lilac flowers, not more than eight inches from the surface of the soil. They succeed well in the open border, and by successive sowings may be had in flower the entire summer and autumn. They are also well adapted for growing in pots to bloom in winter.

Leptotes. From *leptos*, slender; referring to the leaves. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of Brazilian Orchids. The two

species known are pretty little epiphytes, producing small rush-like leaves and lovely white flowers, having a blotch of bright crimson on the lip. They are of easy culture, growing in the green-house, either on cork or in baskets of moss. They require liberal watering during the growing season. They are propagated by division. Introduced in 1831.

Leschenaultia. Named after *M. Leschenault*, a French botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Goodeniaceæ.*

A small genus of very ornamental heath-like shrubs, with rich blue or scarlet flowers, produced in summer. Natives of Australia.

Lespedeza. Named in honor of *M. Lespedez*, once Governor of Florida, and a great patron of botany. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of low-growing, pea-flowering shrubs, annuals and herbaceous perennials, common from South Carolina to Mississippi. Some of the kinds are showy when in flower, but, as a class, are not worth growing.

Lettuce. See *Lactuca.*

Leucanthemum. Ox-eye Daisy. From *leukos*, white, and *anthos*, a flower; white flowers. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

This pernicious weed, *L. vulgare*, formerly included in the genus *Chrysanthemum*, (*C. leucanthemum,*) is a native of Great Britain, but has become thoroughly naturalized in many parts of the United States. It is a perennial, and increases rapidly from seed, or from the roots. No matter how small the piece of root may be when detached, if left in the ground it will speedily make a plant. *L. frutescens*, the "Marguerite" of France, although classed as a weed, and a bad one at that, has been used to a large extent for massing and ribbon lines in the vicinity of Paris, and the flowers, when forced, are now used for winter bouquets. They are at the present writing much used in New York and other large cities.

Leucadendron. From *leukos*, white, and *dendron*, a tree; in allusion to the white leaves. *Linn. Diœcia-Tetrandria.* Nat. Ord. *Proteaceæ.*

An extensive genus of green-house evergreen shrubs from the Cape of Good Hope. They are cultivated for their silvery foliage, and their large terminal clusters of yellow flowers, which are produced in June and July. They all grow freely in a cool green-house, if care be observed not to over-water in winter; in fact, they are at all times impatient of water. They are readily increased by cuttings of ripened wood. First introduced in 1774.

Leucocoryne. From *leukos*, white, and *koryne*, a club; because of the white sterile anthers. *Linn. Triandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Half-hardy bulbous plants, pretty, and deserving attention. They may be cultivated either in pots or in the open ground, if they are taken up and preserved in sand through the winter. The flowers are large for the size of the plant, and are either white or lilac. When planted in the borders the bulbs should be set rather closely together to insure a display. They are increased by offsets. Introduced from Chili in 1851.

Leucojum. Snowflake. From *leukos*, white, and *ion*, a violet; in reference to the color of the flower, whence the English name Snowflake. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

Hardy bulbs, growing to the height of twelve and eighteen inches, and producing spikes of pretty white flowers like the Snowdrop. They increase by offsets from the bulbs. *L. vernum*, Spring Snowflake, is one of our best early flowering bulbs. It is a native of Germany and Switzerland, where it is found wild in the woods and other shady places. It was introduced in 1596; is dedicated to St. Agnes, the patron saint of young virgins, from its loveliness and purity; and hence is called St. Agnes's Flower. In Parkinson's time it was also known by the name of the Great Early Bulbous Violet. It is said to have become naturalized in the neighborhood of Bridgport, Dorsetshire, England. These very elegant and delightfully fragrant flowers greatly resemble the Snowdrop, but they are much larger, and are about a month later. There is a yellowish green spot on each petal near the point. They are among the most desirable of early-growing bulbs, and are suitable for rock-work or borders. A sheltered situation should be chosen, and the soil should be well drained. See *Erinosma.*

Leucopogon. From *leukos*, white, and *pogon*, a beard; referring to the hairs on the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Epacridaceæ.*

An extensive genus of evergreen shrubs, with handsome white flowers, produced in terminal or axillary spikes. The species are widely scattered over Australia, Tasmania, and New Zealand. But few of the species are under cultivation.

Leucostegia. From *leukos*, white, and *stega*, a covering; the fronds appear to be covered with powder. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of East Indian Ferns, allied to *Davallia*, and requiring the same treatment.

Lewisia. Bitter Root. Named after *Captain M. Lewis*, the American traveler and companion of Clark. *Linn. Polyandria-Monogynia.* Nat. Ord. *Mesembryaceæ.*

L. rediviva, the only species, is a succulent perennial, with a fleshy, tapering root. Its leaves are quite succulent, and from their center arises a strong stalk bearing a solitary rose-colored flower, surrounded by an involucre of five to seven scales. As soon as the flower appears the leaves begin to wither and dry up, usually lasting only a few days, the entire period of the plant's existence above ground not exceeding six weeks. This exceedingly curious plant is a native of the Upper Oregon Territory, and its roots, which are largely collected by the Indians, afford a wholesome though bitter tasted food, being composed almost entirely of starch. The specific name, *rediviva*, was given to the plant in consequence of the growth of some dried and apparently dead roots, taken from an herbarium specimen.

Liatris. Derivation of the name unknown. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

This genus consists of some twenty species, all hardy herbaceous perennials, common from New York to Kansas and southward. Some of the species are very ornamental border plants. They all produce long spikes of purple flowers from August until October. *L. pycnostachya* (Kansas Gay Feather) is one of the finest of the species. The flowers are rosy purple, on a spike three to four feet high. They begin to flower at the top of the spike, and continue to open downward, which is characteristic of the species. They are increased by seed, and will flower the

second year. They will grow anywhere and bloom well; the size and length of spike will, however, be in proportion to the richness of the soil.

Libertia. Named after *Mademoiselle M. A. Liebert de Malmedy*, a Belgian lady and botanist. *Linn. Monadelphia-Monogynia.* Nat. Ord. *Iridaceæ.*

A small genus of half-hardy bulbs, natives of Australia, Tasmania, New Zealand, and Chili. They are of dwarf habit, with delicate white flowers, which are produced in umbels on a scape one and a half feet high. They are increased by offsets. Introduced in 1822.

Liebigia. Named after *Liebig*, the celebrated German chemist. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

A genus of hot-house evergreen plants, allied to *Æschynanthus*, and requiring the same treatment. They are natives of the East Indies.

Libonia. Derivation not given. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A recently introduced genus of handsome flowering plants from Brazil. *L. floribunda*, the only species now known, is a small suffruticose plant, with elliptic oblong leaves, and very abundant tubular yellow-tipped scarlet flowers, one or two from each leaf axil. The calyx is five cleft; the corolla tubular, with an erect bilabiate limb; two stamens affixed to the middle of the tube, with two-celled cordate-ovate anthers, one cell inserted higher than the other; disk annulate; style filiform, with a punctate stigma. The flowers are drooping, very abundant, and exceedingly ornamental. The leaves are apt to drop if the plant is allowed to suffer for water. *L. Penrhosiensis*, a seedling from the above, is in many respects a decided improvement. The plant is dwarfer and of denser growth; the foliage is darker, larger, and more persistent; the flowers are even more abundant, there being from four to six at the axils instead of two, with more red and less yellow; and they make their appearance earlier. These plants should be grown in the green-house, where they will flower from November till spring. They are also excellent sitting-room plants, and worthy of a place in any collection. They grow best in a moderately rich loam, and should be regularly and abundantly watered. They are easily raised from cuttings. Introduced in 1864.

Lignum Vitæ. See *Guaiacum.*

Ligustrum. Privet. From *ligare*, to tie; referring to the use made of the flexible shoots. *Linn. Diandria-Monogynia.* Nat. Ord. *Oleaceæ.*

A genus of hardy shrubs. *L. vulgare*, the common Privet, extensively used for hedges, is a native of nearly all parts of Europe, and is propagated by cuttings of young shoots. *L. Californica*, a species of recent introduction, is a shrub remarkable for the beauty of its foliage. The leaf is considerably larger than that of the common Privet, of a very dark waxy-green on the upper surface, and the under surface pea-green. The plant is of rapid growth. Singly, upon the lawn, it is of great beauty, while its adaptation for a hedge is perfect. When first introduced its hardiness was questioned; it has, however, in the park at Garden City, L. I., and elsewhere, stood the past severe winters without the slightest injury. There are on those grounds plants twelve feet high and from ten to twelve feet in diameter. This species, like the others, is increased readily from cuttings.

Lilac. See *Syringa vulgaris.*

Lilium. The Lily. From the Celtic word *li*, signifying whiteness; the lily having long been considered an emblem of whiteness and purity. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

This genus, the type of an extensive order, numbers upward of sixty species, and is eminently distinguished for its surpassing loveliness, its rare combination of grandeur and chaste beauty. A remarkable feature in this family of plants is, that it has no *poor relations.* In a general collection of the species, all that can be imagined desirable and perfect in floral forms will be realized. A great inducement to the cultivation of this genus is their ease of culture, and their almost perfect hardiness, thriving with all the vigor of indigenous forms when planted in the flower border. All of them delight in light rich soil, such as is afforded by a mixture of loam and well-rotted manure, and one uniform treatment is applicable under all circumstances to the whole of the species: all may be grown together in the border, and remain undisturbed a number of years, frequent removals being injurious, by destroying the roots. All the species thrive best when planted in partial shade, the shrubbery border, or in large beds in an open grove. Propagated by offsets. When the old bulbs have several small ones formed around them, take them up in October, divide them into single bulbs, and replant the large flowering bulbs immediately into fresh, rich earth, where they are to flower. Plant the small bulbs in a bed of the same kind of soil by themselves; let them remain until sufficiently large and strong for flowering, which should require but two years; then take them up, select the larger bulbs, and plant them where they are to remain, taking care to enrich the earth with well decomposed manure, the small ones to be replanted as before. *L. candidum* should be taken up and replanted in August or first part of September, as the bulbs make a growth in autumn, upon which in a great measure depends their flowering the coming season. In selecting the situation for the Lily-bed, care should be taken to have the dryest spot possible, where water is not liable to stand in the winter. A good mulching of leaves, coarse manure, or evergreen boughs will prove highly beneficial. The species are pretty generally distributed throughout the temperate regions of the northern hemisphere; a few only are found in the mountains of sub-tropical Asia. California has furnished several that are among the more difficult to cultivate here, because of the difference in the seasons of growth. Japan has furnished by far the greater number of really excellent species, among which are *L. auratum*, or Golden Banded; *L. speciosum* and its varieties; *L. Kramerii*, *L. Leichtlinii*, *L. Tigrinum flora plena*, *L. Thunbergianum* in variety, *L. longiflorum*. *L. candidum*, the oldest known species, comes from the Levant. Asia furnishes *L. Chalcedonicum*; Siberia the beautiful little *L. tenuifolium*, which is there grown as an article of food. The United States contributes *L. superbum*, *L. Canadense*, *L. Philadelphicum*, *L. Catesbæi*, *L. Carolinianum*, and *L. Columbianum*, together with *L. Washingtonianum*, *L. Humboldtii*, *L. parvum*, *L. Californicum*, *L. pardalinum*, *L. Roezlii*, *L. Parryi*, and *L. Walkerii* from California. Most other species are found scattered throughout Europe. The great popularity of this flower has induced the growers and dealers to sub-divide the species and multiply varieties to such an extent as to bewilder the amateur in making a selection. A prominent

LIL

European house offers sixty varieties of *L. Thunbergianum*, and nearly as many of *L. lancifolium (speciosum.)* *L. candidum* has eight varieties, *L. umbellatum* about thirty, any one of which would well represent the family. All the varieties succeed well grown in pots; but two, *L. candidum* and *L. longiflorum*, bear what is termed forcing, or are made to bloom out of their natural season. *L. candidum*, or the white panicled Easter Lily, is the species so extensively forced for flowers for Easter. The method is to plant the bulbs in six inch pots, deep enough to merely cover the bulb, any time from September 1st to December 1st, plunging the pots of those potted early to the rims out of doors in a sheltered, warm spot, and covering up with leaves as cold weather approaches, so that they shall not get frozen at any time. Those that are potted later, say from the middle of November, should be plunged in the same way either in the soil under the benches in a cold green-house, or in a cold frame. The object is in all cases to get them to fill the pot with roots in a low temperature. When the pots are well filled with roots, they may be brought into a higher temperature, say 55° at night and 10° or 15° higher in the daytime. If the pots are well filled with roots they will come in flower from eight to ten weeks after being placed in the above temperature. When the flower stems begin to ascend, the plants may be liberally supplied with liquid manure once a week or so, taking care, however, never to water unless the plant shows indications of being dry. The treatment given above for *L. candidum* will also answer for *L. longiflorum*, the white Trumpet Lily, except that the latter should first be put in five-inch pots and remain until well filled with roots, or until the plant is three to four inches high; then shift into a six-inch, placing the ball on the bottom, so that all, or nearly all, the fresh mould is at the top. When the second pot is well filled with roots, shift as before into a seven-inch pot, where they can remain until they come into flower. Soon after flowering, this variety will show a disposition to rest, and if allowed but a short period, and re-potted into an eight-inch pot without disturbing the roots, and kept in a cool house, they will again come into flower in September and October; again, after a short rest, they will, without a change, make a new growth and flower in the following spring, by which time the bulbs will have become so exhausted as to need planting in the border for at least two years. These Lilies may also be forced by placing the bulbs at once in the pots in which they are intended to flower. Large numbers of them are forced for Easter. It may be added here that the California Lilies often remain in the ground a whole year before growing.

Lily. See *Lilium.*

Lily of the Amazon. See *Eucharis.*

Lily, Easter. See *L. candidum.*

Lily, Golden Banded. See *L. auratum.*

Lily, White Trumpet. See *L. longiflorum.*

Lily of the Nile. See *Richardia.*

Lily of the Valley. See *Convallaria.*

Limatodes. Name unexplained. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of East Indian terrestrial Orchids, nearly allied to *Calanthe*. *L. rosea* is a very beautiful plant. The flowers are from pure white to the deepest pink, produced on a tall spike, which proceeds from the base of the bulb after the foliage has died away. They require the same treatment as the *Calanthe.*

LIN

Lime Tree. See *Citrus.*

Limnanthes. From *limne*, a marsh, and *anthos*, a flower; in allusion to the habitat of the plant. *Linn. Decandria-Monogynia.* Nat. Ord. *Tropæolaceæ.*

A small genus of hardy annuals from California. They are of trailing habit, and produce small white, and yellow and white flowers, quite fragrant and neat, but not showy. They come soon into flower after the seed is sown, and a succession of flowers can be kept up by occasional sowings during summer. They are not at all particular as to soil, but prefer a moist situation.

Limnobium. American Frog's Bit. From *limnobius*, living in pools. *Linn. Diœcia-Hexagynia.* Nat. Ord. *Hydrocharidaceæ.* A genus of aquatic plants, floating in stagnant water, common almost everywhere.

Limnocharis. From *limne*, a pool, and *chairo*, to delight in; referring to their habitat. *Linn. Polyandria-Monogynia.* Nat. Ord. *Butomaceæ.*

A small genus of green-house aquatic plants, with yellow flowers and heart-shaped leaves. They are natives of Brazil. Two species only have been introduced, and they are only to be found in rare collections.

Limonia. From *limoun*, the Arabic name of the Citron. *Linn. Decandria-Monogynia.* Nat. Ord. *Aurantiaceæ.*

A small genus of evergreen shrubs from the East Indies, China, and New Holland. *L. acidissima*, typical of the genus, is a spiny shrub growing eight or ten feet high, and having pinnate leaves with winged stalks, and racemes of pure white flowers. The fruit is about the size of a damson plum, yellow, with a red or purplish tint. The natives employ the extremely acid pulp of these fruits as a substitute for soap. The fruit is also used medicinally.

Linaria. Toad Flax. From *linum*, flax; on account of the similarity of the leaves. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

A very large genus of hardy annuals, herbaceous perennials, and a few half-hardy and tender species. Many of them are exceedingly ornamental. *L. cymbalaria* is the well-known *Kenilworth Ivy*, or *Coliseum Ivy*, a valuable trailing plant, and one of the best for various rustic designs. There is a very pretty variegated form of this species. *L. triornithophora*, remarkable for the resemblance of its flowers to three little birds attached to the spur. *L. vulgaris*, commonly known as Butter-and-Eggs, was introduced into Philadelphia as a garden flower many years ago, and has become thoroughly naturalized, and a perfect nuisance in many parts of the country. When once introduced it takes almost complete possession of the soil. It produces an almost innumerable number of seeds, besides its rapid increase by means of its numerous spreading roots. The useful species are all readily increased from seeds.

Linden. See *Tilia.*

Lindera. Wild Allspice, Fever Bush. Named after *John Linder*, a Swedish botanist. *Linn. Diœcia-Polygamia.* Nat. Ord. *Lauraceæ.* A tall-growing shrub, common in damp woods from Virginia southward.

Lindleya. Named after *Professor Lindley* by Humboldt and Kunth. *Linn. Icosandria-Pentagynia.* Nat. Ord. *Rosaceæ.*

L. mespiloides, the only species, is an ornamental low-growing evergreen tree or shrub, native of the mountain regions of Mexico. It has

simple crenulate, shining leaves, and solitary large white, sweet-scented flowers, borne on the tips of its branchlets.

Lindsæa. Named after *M. Lindsay*, a distinguished English botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of tropical Ferns, mostly strong growing, and requiring the warm greenhouse or hot-house to grow them.

Linnæa. Dr. J. F. Gronovius, with the concurrence of Linnæus, selected this little depressed, early-flowering, long-overlooked northern plant, to transmit the illustrious name of Linnæus to posterity. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Caprifoliaceæ.*

L. borealis, the only species, is a beautiful little trailing evergreen plant, with long, slender branches, bearing small ovate or obovate leaves, slightly toothed at the top, and sending up erect, thread-like flower stalks, which fork near the top, and bear two gracefully drooping, very fragrant, bell-like flowers, of a pale pink or nearly white color, and almost half an inch in length. It grows almost exclusively in woods, in cold, moist situations, and is common from New Jersey northward, and is widely dispersed over northern Europe and Asia. According to some writers, its scent is so powerful, especially at night, that it may be discovered at a considerable distance. The Laplanders use a decoction of its flowers as a remedy in rheumatic complaints.

Linum. Flax. From the Celtic word *llin*, a thread; whence the Greek *linon*, and the Latin *linum*. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Linaceæ.*

This genus contains upward of fifty species of various characters, some rising to be small shrubs, hardy and tender perennials, biennials, and annuals; all of them interesting, and many very handsome. One species, *L. usitatissimum*, affords the well-known and valuable product Flax. The tender species require the ordinary treatment of green-house plants. *L. flavum* is one of the most beautiful of all our *yellow* flowering plants; while *L. grandiflorum*, an annual, has magnificent crimson flowers. The hardy species delight in good loamy soil. The tall-growing ones should be placed in the borders, and the dwarf kinds on rock-work. The latter are somewhat impatient of wet in winter, and in consequence are usually potted in autumn, and kept in a cold frame during winter.

Lion's Ear. See *Leonotis.*

Liparis. From *liparos*, unctuous; referring to the leaves. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of terrestrial and epiphytal Orchids, of no special merit. They have mostly purplish or greenish flowers. Several of the species are common in moist woodlands in the Middle States and westward.

Lip Fern. See *Cheilanthes.*

Liquidambar. From *liquidus*, liquid, and *ambar*, amber; referring to the gum called liquid storax produced by some species. *Linn. Monœcia-Polyandria.* Nat. Ord. *Altingiaceæ.*

A genus of beautiful deciduous trees. *L. styraciflua*, our common Sweet Gum Tree, is one of our finest forest trees, and one deserving more general cultivation on the lawn, and for a shade tree upon the roadsides. It is a tall, erect growing tree of elegant appearance, especially in autumn, when its beautiful star-shaped leaves change to a bright red, quite as conspicuous as those of the Maple, and remain on the tree much longer. This is the tree whose rough, triangular branches, are sold in the streets of New York as the "Alligator Plant." These pieces of stick are sold by the thousands every season at from twenty-five to fifty cents each, to unsophisticated city men, with about as much chance of growing as their fence pickets. There are but two other species, one from the Levant, and the other of late introduction from Formosa. They are increased from seeds.

Liquorice. See *Glycyrrhiza.*

Liriodendron. Tulip Tree. From *leirion*, a lily, and *dendron*, a tree; the flower produced by this tree bears some resemblance to a Lily, but is more like a Tulip. *Linn. Polyandria-Polygynia.* Nat. Ord. *Magnoliaceæ.*

L. tulipifera, the only species, is one of our most beautiful forest trees, and has no superior for a shade tree where there is plenty of room for its perfect development. It is common from Canada to Louisiana in rich woodlands, where it sometimes attains a height of two hundred feet. The trunk is as straight as an arrow. Its flowers are produced in June in the greatest abundance. They are of the size and shape of Tulips, and very fragrant. Color greenish white, variegated with yellow and orange. There are two varieties of the species, one of which furnishes white, the other yellowish lumber. The former is of but little value in the mechanic arts, but the latter is highly esteemed for cabinet work, and is mostly used for carriage bodies. Propagated by seed.

Lissochilus. From *lissos*, smooth, and *cheilos*, a lip; in allusion to the lip of the flower. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A genus of terrestrial Orchids from Africa, producing racemes of rather showy flowers from the base of the pseudo-bulbs. The species are not very numerous, and the few are only met in large collections.

Lisianthus. From *lysis*, the termination of a disease, and *anthos*, a flower; referring to its intense bitterness and medicinal properties. *Linn. Pentandria-Monogynia.* Nat. Ord. *Gentianaceæ.*

This genus is composed of green-house annuals and evergreens, mostly of little merit as flowering plants, the exception being *L. princeps*, an evergreen shrub from New Grenada, that has long hanging flowers of a rich scarlet, shading into yellow at either end, and having an emerald green, five-lobed limb. This species is propagated by cuttings, and was introduced in 1848. *L. Russellianus*, an annual or biennial from Mexico, is another very pretty species with rich blue flowers shaded with purple. Propagated by seeds.

Listera. Twayblade. Dedicated to *Dr. Martin Lister*, an early British naturalist. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of terrestrial Orchids, bearing slender spikes of small green flowers. Of no special interest except in botanical collections. The several species are common throughout the United States.

Litobrochia. A commemorative name. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of tropical Ferns, differing from *Pteris* only in the reticulation of the veins of the fronds.

Live-Forever. See *Sedum.*

Liver-Leaf. The popular name of *Hepatica triloba*, from a supposed resemblance of the leaves.

LIV

Live Oak. See *Quercus virens.*

Livistonia. In honor of *Patrick Murray, of Livistone,* near Edinburgh. *Linn. Hexandria-Trigynia.* Nat. Ord. *Palmaceæ.*

A genus of very interesting Palms, inhabiting the Upper Assam, Southern China, the Indian Archipelago, and Australia. Two of the species attain a height of from ninety to one hundred feet. The remaining species rarely exceed thirty or forty feet in height. *L. Australis,* also called *Corypha Australis,* is one of the few Palms found in Australia, and is principally found along the coast. It is the tallest of the species. Its unexpanded leaves, prepared by being scalded and then dried in the shade, are used for making hats, while the younger and more tender leaves are eaten like cabbages. In Assam the leaves of *L. Jenkinsiana* are used for making the peculiar umbrella hats worn in that country. Several of the species are under cultivation, particularly *L. Australis,* which is largely grown for decorative purposes in all large cities in the United States. Young plants are obtained from seed. Introduced in 1846.

Llavea. In honor of *M. La Llave,* the discoverer of the only known species. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

L. cordifolia, the only species, is a very interesting Fern, found in the higher elevations of Mexico. It requires the same treatment as most green-house Ferns.

Loasa. Meaning unknown; probably a commemorative name. *Linn. Polyadelphia-Polyandria.* Nat. Ord. *Loasaceæ.*

A genus of very curious climbing or creeping plants, of annual or biennial duration, having yellow, white, or scarlet flowers. The seed should be sown in March on a gentle heat, and after being gradually hardened the plants may be removed to the borders of the flower-garden. The leaves of all the species have more or less of the irritating qualities of the common Stinging Nettle. They are all natives of Chili, and were introduced in 1822.

Lobelia. Named in honor of *Matthew Lobel,* author of various botanical works. He was a native of Lille, became physician and botanist to James I., and died in London in 1816. *Linn. Pentandria-Monogynia.* Nat. Ord. *Lobeliaceæ.*

An extensive and varied group of interesting plants. The genus consists of over eighty species, many of which are highly ornamental and useful in the garden and in the green-house. *L. erinus* and its varieties are trailers, and remarkable for their profusion of beautiful blue flowers. They are usually treated as annuals, and grown from seed, but succeed grown from cuttings. This species was introduced from the Cape of Good Hope in 1752, and from it have sprung numerous varieties, running through all shades of blue, rose, lilac, etc. A very pretty double blue variety was originated in 1870. *L. Cardinalis,* Cardinal Flower, a native species, common throughout the States, is one of the most brilliant flowers in cultivation. Though usually found in moist places, it will grow well in the border, and is one of our best plants to grow on the shady side of the house. *L. syphilitica,* another species common to our waste places, has beautiful blue flowers. *L. inflata,* (Indian Tobacco,) an annual species, common in the Northern States, is perhaps the best known of the whole family, because of the medicinal properties it was formerly supposed to possess. It is still largely used in medicine, but is not now considered a specific for every disease that flesh and blood are heirs to.

LOL

Loblolly Bay. See *Gordonia.*

Lobster-Leaved Cactus. See *Epiphyllum.*

Loco. See *Astragalus.*

Locust Tree. See *Robinia.*

Lodoicea. Named after *Laodice,* the daughter of Priamus and Hecuba. *Linn. Dicœcia-Polyandria.* Nat. Ord. *Palmaceæ.*

L. Seychellarum, the only species of this genus, is one of the most remarkable of the order. It is found only on the islands Praslin and Curiense of the Seychelles group. This Palm has a nearly cylindrical trunk, scarcely exceeding a foot in diameter, grows to the height of one hundred feet, and bears a crown of fan-shaped leaves, some of which are upward of twenty feet long and twelve feet wide. Many marvelous stories are told of this tree, its fruit, and its uses. We give the description and history of this Palm, which is far more wonderful than fiction, in the language of Thomas Moore, F.L.S., as related in the "Treasury of Botany:" "This magnificent Palm requires a great length of time to arrive at maturity. The shortest period before it puts forth its flower-buds is thirty years, and a hundred years elapse before it attains its full growth. From the age of fifteen to twenty-five years it is in its greatest beauty, the leaves at this period being much larger than they are subsequently. The stem grows quite upright, straight as an iron pillar, and in the male trees frequently attains a hundred feet in height, the females being shorter. At the age of thirty it first puts forth its blossoms, the males forming enormous catkins about three feet in length and three inches in diameter, while the females are set on a strong zigzag stalk, from which hang four or five, or sometimes as many as eleven nuts, averaging about forty pounds weight each. From the time of flowering to the maturation of the fruit, a period of nearly ten years elapses, the full size, however, being attained in about four years, at which time it is soft and full of a semi-transparent, jelly-like substance. The arrangements provided by nature for the roots of this tree are of a most peculiar kind. The base of the stem is rounded, and fits into a natural bowl or socket about two and a half feet in diameter and eighteen inches in depth; this bowl is pierced with hundreds of small oval holes about the size of a thimble, with hollow tubes corresponding on the outside, through which the roots penetrate the ground on all sides, never, however, becoming attached to the bowl, their partial elasticity affording an almost imperceptible but very necessary 'play' to the parent stem when struggling against the force of violent gales. This bowl is of the same substance as the shell of the nut, only much thicker. It rots very slowly, for it has been found quite perfect and entire in every respect sixty years after the tree has been cut down."

Logwood. See *Hæmatoxylon.*

Loiseleuria. Alpine Azalea. Named for *Loiseleur Delongchamps,* a French botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Ericaceæ.*

L. procumbens, the only species, is a trailing evergreen shrub with small elliptical leaves, and terminal clusters of small rose-colored or white flowers. It is found on the summits of the White Mountains in New Hampshire, in the most rocky situations.

Lolium. See *Darnel.*

LOM

Lomaria. From *loma*, an edge; referring to the position of the spore or seed cases on the leaves. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive and interesting genus of Ferns, including hardy green-house and hot-house species. They occur in most parts of the world, and comprise examples with simple pinnatifid and pinnate fronds, while one species, *L. Fraseri*, has a slender, tree-like stem, and bipinnatifid fronds, but it is quite exceptional in the genus. *L. Gibbii*, a dwarf species, is largely grown for decoration. For culture see *Blechnum*, to which it is allied. Propagated by spores.

Lomatia. From *loma*, an edge; referring to the winged edge of the seeds. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Proteaceæ.*

A small genus of South American and Australian evergreen shrubs or small trees. They have simple pinnate or bipinnate leaves of a leathery texture. A few of the species are grown in collections of plants, with variegated or ornamental foliage. They require ordinary green-house treatment. Propagated by cuttings.

Lombardy Poplar. See *Populus.*

Long Moss. See *Tillandsia.*

Lonicera. Honeysuckle. Named after *Adam Lonicer*, a German botanist, who died in 1596. *Linn. Pentandria-Monogynia.* Nat. Ord. *Caprifoliaceæ.*

An extensive genus of climbing and upright shrubs, inhabiting both the Eastern and Western Hemispheres, and much cultivated for the sake of ornament and the fragrance of their flowers. *L. sempervirens*, Trumpet Honeysuckle, a handsome climbing species with sub-evergreen foliage and scarlet flowers, is a native species, common from New York to Florida, and one of the most ornamental. *L. Japonica*, var. *Hallii*, from Japan, is one of the best of the climbers, and *L. brachypoda variegata*, also from Japan, is prized for the beauty of its variegated foliage. *L. Tartarica*, Tartarian Honeysuckle, makes an ornamental shrub, growing from six to eight feet high, of compact habit, and is profusely covered with flowers in May, and with orange-colored berries during summer. All the species are worthy of cultivation, and are readily increased by layers, cuttings, or from seed.

Loosestrife. See *Lysimachia.*

London Pride. See *Saxifraga.*

Long-tailed Ornithogalum. See *Ornithogalum.*

Lopezia. Named in honor of *J. Lopez*, a Spanish botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Onagraceæ.*

This is a genus of very handsome plants, distinguished by having two filaments, of which one bears an anther, and the other is petal-like and abortive. The seed vessel is four-valved, four-celled, and many seeded. The species are all natives of Mexico, bearing alternate, rarely opposite toothed leaves, and terminal racemes of small purple or red flowers. The biennials are green-house plants. The seeds of the annuals may be sown early in a hot-bed or in the green-house, and transplanted when they have made a couple of leaves. They make very pretty standards when trained and pinched during the summer. On the approach of cold weather they should be brought into the green-house, where they will flower handsomely during the winter. *L. elegans* is one of the best. They may be grown from cuttings as well as from seed. First introduced in 1792.

Lophospermum. From *lophos*, a crest, and *sperma*, a seed; the seeds are furnished with a crested wing. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Scrophulariaceæ.*

LUF

Handsome green-house climbers, bearing numerous large rosy-purple flowers. They are also adapted for the open air, and flower well when trained against a wall or fence having a south aspect in the flower garden, delighting in an airy position, with rich earth to grow in. Seed is also produced plentifully in such positions; and when this is secured, it saves the trouble of preserving plants through the winter, as, if it is sown early in March, on heat, and brought forward in pots, the young plants bloom quite as soon, and are generally more vigorous than those which have been kept from the preceding year. *L. scandens*, the species best known, is a native of Mexico, and was introduced in 1834.

Lotus. From *lotos* of Theophrastus; the true *Lotus* is *Zizyphus Lotus. Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

An extensive genus of hardy annuals and herbaceous perennials, a few of which are ornamental, and are sometimes cultivated in the borders. Several of the species are forage plants. *Lotus Jacobeus*, a green-house plant, has flowers nearer black than almost any known flower. They are all increased from seeds.

Lousewort. One of the vulgar names of *Pedicularis Canadensis*; also called Wood Betony.

Love Apple. A name used in England for the Tomato, and formerly here.

Love-in-a-Mist. See *Nigella.*

Love-lies-Bleeding. See *Amaranthus caudatus.*

Lucerne. See *Medicago.*

Luculia. *Luculi Swa* is the name given to the tree by the Nepalese. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

The two species forming the genus are among the finest winter-flowering plants we possess, as, when well grown, they become covered with large heads of lovely pink flowers. The plants should be placed when young into large pots, well drained, and filled with fibrous loam. The encouragement of a slight bottom heat and a rather elevated humid atmosphere will induce them to grow with vigor. It is best, in this early stage of their development, to stop the shoots once or twice, so as to form handsome specimens, and when the growth is nearly complete, they should be removed to the green-house to mature it and form their flowers, which are usually unfolded about the end of autumn, and with a little care may be preserved for a long period. *L. gratissima* is the best known species, and should find a place in every collection. It bears numerous cymes of reddish-pink flowers, which are very fragrant. There are few more beautiful plants than this when in bloom, and it should be more generally grown. It does well in a loamy soil, to which leaf mould and sand have been added. Natives of Nepal. Introduced in 1823. Propagated by cuttings.

Luddemannia. Complimentary to *M. Luddemann. Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

L. Pescatorei, the only species, was formerly called *Cycnoches Pescatorei.* It is a native of South America. The flower spike is pendulous, very long, producing thirty to forty buff-yellow flowers, brown inside, with the sepals and lip bright yellow. This species should be grown in a basket in moss. It is increased by division.

Luffa. From *louff*, the Arabic name. *Linn. Monœcia-Pentandria.* Nat. Ord. *Cucurbitaceæ.*

A curious genus of Gourds, not often culti-

vated because of their offensive odor. They are ornamental climbers, covering and adorning the trunks of the Palm trees in India. When ripe, the inside of the fruit is closely netted and fibrous, and is used for scouring cooking utensils. Hence, some of the species are called *Sponge Gourds* and *Dish-rag Plants*.

Lunaria. Moonwort, Honesty. From *luna*, the moon; referring to the shape of the seed-vessels. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

Of this old garden plant there are but two species, one a hardy biennial, *L. biennis*, with blue and white, and white flowers, and interesting for their large oval, silvery seed pouches, which are quite ornamental, and are much used in bouquets of dried Ferns and Grasses, as they last a long time if kept dry. The seed of this species should be sown in early summer for flowering the next year. It is a native of Germany, and is mentioned by the earliest botanical writers. The other species is a hardy herbaceous perennial of but little merit.

Lupine. See *Lupinus.*

Lupinus. Lupine. From *lupus*, a wolf; devastates land as a wolf does the fold; literally, destroyer. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of herbaceous annuals and perennials, which contain some of our most beautiful border flowers; yellow, blue, white, and pink Lupines are among the oldest border annuals. *L. nanus* is a beautiful little annual, with dark blue flowers, a native of California, and requires the usual treatment of Californian annuals. *L. mutabilis* and *L. Cruikshankii* are splendid plants, growing to the height of four or five feet, and branching like miniature trees; *L. polyphyllus* and its varieties are perennials, and they are splendid and vigorous-growing plants, with spikes of flowers from one foot to eighteen inches in length; *L. Nootkatensis* is a handsome dwarf perennial, and *L. arboreus*, when trained against a wall, will attain six feet in height, and in sheltered situations it will grow with equal vigor when trained as a bush tied to a stake; *L. latifolius* is a perennial from California, with very long spikes of blue flowers.

Luzula. From the *Gramen Luzulæ* of Bauhin, the Glow-worm Grass. *Linn. Hexandria-Monogynia.* Nat. Ord. *Juncaceæ.*

A genus of herbaceous perennial plants allied to the Rushes. They are of but little beauty. They are common throughout the United States. From their being usually found in dry grounds and woods, they are commonly known by the name Woodrush.

Lycaste. Named after a beautiful woman of Sicily. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

Very handsome epiphytes of the pseudo-bulbous class. They grow with freedom when potted in a well-drained mixture of leaf-mould, sphagnum, and rotten wood, interspersed with which should be a considerable number of small pieces of charcoal or potsherds. Being natives of the Western Hemisphere, the species do not require a very high temperature, that of an ordinary green-house being fully sufficient; neither do they require so decided a rest as some other individuals of the order, but should be freely supplied with both water and air when growing. There are about twenty-five species in this genus, all natives of Central and South America. First introduced in 1828.

Lychnis. From *lychnos*, a lamp; referring to the brilliancy of the flowers of some of the species. *Linn. Decandria-Pentagynia.* Nat. Ord. *Caryophyllaceæ.*

A group of very ornamental herbaceous plants, quite hardy, and deserving a place in every garden. The species vary in character very much, some of them attaining a height of three or four feet, as in the case of the common Scarlet Lychnis, (*L. Chalcedonica,*) an old garden favorite from Russia, valuable because there are so few flowers of that color among our hardy herbaceous plants. There is a fine double variety of this species, also a single white. *L. Haageana* is also fine. Many others are low-growing, not more than six inches in height. *L. grandiflora* and *L. fulgens* are very handsome, and the very pretty *L. cœli-rosea* should be included in the list of annuals for every garden. *L. Senno*, introduced from Japan in 1865, is beautifully striped white and crimson. Propagated by cuttings or seeds.

Lycium. Box Thorn. From *lycion*, a name given by Dioscorides to a thorny shrub, and applied to the genus because of its containing some thorny shrubs. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

There are numerous species in this genus, all hardy or green-house shrubs, mostly of little value as ornamental plants. *L. barbarum* is a plant of rapid growth, green foliage, and small lilac flowers. It is a climber, and was grown considerably in England to cover trellises and arbors. It is commonly called Tea Plant, and its leaves were recommended as a substitute for tea; the advice, however, was but little heeded. *L. Carolinianum*, a handsome shrub, is common in the swamps from Carolina to Florida. *L. vulgare*, a native of Europe, and an escape from our gardens into the hedge-rows and waste places in some of the States, is popularly known as Matrimony Vine.

Lycopersicum. See *Tomato.*

Lycopodium. Club Moss. From *lykos*, a wolf, and *pons*, a foot; the roots having a resemblance to that animal's paw. *Linn. Cryptogamia-Lycopodineæ.* Nat. Ord. *Lycopodiaceæ.*

An extensive genus of neat little evergreen, moss-like herbaceous plants, some of which are found in all parts of the world. Several of the species are common in the green-house, and are exceedingly ornamental and useful in filling Ferneries, Wardian Cases, and the various devices in rustic work. *L. densum*, one of the most beautiful that has been introduced into the green-house, is a native of New Holland, introduced in 1820. *L. dendroideum*, remarkable for its tree-like appearance, is largely employed in making "Christmas greens," and in bouquet work by the florists. It is very common in swampy places, particularly in New England. The spores of the common Club Moss are very inflammable, and are used on the stage to produce artificial lightning. See *Selaginella.*

Lycoris. The name of a woman in Roman history. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of hardy bulbs from China, producing several showy flowers, in an umbel, on a slender scape from twelve to eighteen inches high, the color being yellow or light straw, and pink. They are allied to the *Vallota*, and require the same treatment. Introduced in 1758.

Lygodictyon. From *Lygodium* and *dictyon*, a

net; its net-like veins distinguishing it from *Lygodium*. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

L. Forsteri, a climbing Fern, common in the South Sea Islands, constitutes this genus. It is almost identical with the genus *Lygodium*. It is also known as *Hydroglossum*.

Lygodium. Climbing Fern. From *lygodes*, flexible; in allusion to the twining habit of the plants. *Linn. Cryptogamia - Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of climbing Ferns, mostly of an ornamental character, and widely dispersed over the warmer parts of the earth. *L. scandens*, introduced from Japan in 1830, is a favorite in the green-house, and is well adapted to house culture, as it requires but little light, and is not injured by "furnace heat" or gas, so fatal to most plants introduced into the drawing-room. It is, moreover, a rapid grower. With a little management this plant can be made to complete its growth during the summer, and it may then be placed in a cool room in the house or in the hall, where it will remain an object of beauty till spring, when it may be cut down for a new growth. There is reason to suppose that *L. scandens* is hardy, even in the vicinity of New York. It is increased by spores or root division. *L. palmatum*, the only native species, is found in Connecticut, Massachusetts, Virginia, and Kentucky. It is pressed and sold in large quantities for parlor decoration, and is known in the trade as the *Hartford Fern*. Many attempts to cultivate this species have been made, but few, if any, have been successful. A few plants, however, are growing in a garden at Manchester, Conn.

Lysimachia. Loosestrife. From *lysis*, dissolution, and *mache*, strife; supposed soothing qualities. *Linn. Pentandria-Monogynia.* Nat. Ord. *Primulaceæ.*

Hardy herbaceous perennials of the easiest culture. *L. nummularia*, Moneywort, is a well-known evergreen trailer, a native of Great Britain. If kept in a pot of moist soil and suspended, it will produce shoots of two or three feet in length, which hang down on every side. *L. nummularia aurea* is a golden-leaved variety of great beauty, now much used as a drooping plant. *L. verticillata* is an upright-growing plant, with an abundance of showy yellow flowers suitable for a large border. They all grow readily from seed or from cuttings.

Lythrum. From *lythron*, black blood; the prevailing purple color of the flowers. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Lythraceæ.*

A genus of hardy annuals and herbaceous perennials. Several of this latter species are common in marshes and wet places throughout the Middle and Western States. The flowers produced in the gardens are finer than those growing wild. They flower freely in the autumn months. Propagated by division.

M.

Mace. The envelope which surrounds Nutmegs. See *Myristica.*

Maclura. Osage Orange. Named after *William Maclure*, a North American geologist. *Linn. Monœcia-Tetrandria.* Nat. Ord. *Moraceæ.*

A genus of handsome, low-growing trees, generally attaining the height of thirty feet. There are but three species included in the genus, two of which are common in the West Indies, and not hardy here, excepting in the extreme Southern States. *M. aurantiaca*, the Osage Orange, is a native of the Southwestern States, and forms a spreading tree from thirty to sixty feet high, but is easily kept dwarf by cutting back, and is extensively used as a hedge plant in the Western States, for which purpose, its rapid growth, together with its strong spines, renders it suitable. The wood is bright yellow and very elastic. It is called Bow-wood, from its being used by the Indians for making bows. Young plants are grown from seed, which, if sown in good soil, will make very strong plants for the hedgerows in two years. Many prefer setting them one year from seed. This species is hardy in the vicinity of New York, and is used for hedges and on the lawn.

Macropiper. The word signifies large pepper. *Linn. Diandria-Triandria.* Nat. Ord. *Piperaceæ.*

M. methysticum, formerly called *Piper methysticum*, furnishes the root called Ava by the Polynesians. It has narcotic properties, and is employed medicinally, but is chiefly remarkable for the value attached to it as a narcotic and stimulant beverage, of which the natives partake before they commence any important business or religious rites. It is used by chewing the root and extracting the juice, and has a calming rather than an intoxicating effect. Europeans distil the juice, and use it as a beverage in moderate quantities. By the more respectable of the population it is considered a filthy preparation, and is not indulged in.

Macrozamia. From *makros*, long, and *zamia*. *Linn. Diœcia-Icosandria.* Nat. Ord. *Cycadaceæ.*

This interesting genus is formed from a few species of Zamia, and contains some of the most beautiful plants under cultivation, for decorative purposes. *M. plumosa*, plume-like, is one of the most distinct and beautiful. *M. corallipes* is another rare species. There are several species under cultivation. They are all natives of Australia. For culture see *Zamia.*

Madder. See *Rubia.*

Madeira Nut. See *Juglans.*

Madeira Vine. See *Boussingaultia baselloides.*

Madia. *Madi* is the name of the original species (*M. sativa*) in Chili. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A small genus of coarse-growing, hardy annuals, with bright yellow and white flowers, natives of Chili and Northern California. They grow freely in almost any soil or situation. The seeds should be sown in the spring as soon as the ground is in readiness and the weather sufficiently warm Introduced in 1831.

Magic Tree. See *Cantua.*

Magnolia. Named after *Pierre Magnol*, Professor of Medicine at Montpellier; he died in 1715. *Linn. Polyandria-Polygynia.* Nat. Ord. *Magnoliaceæ.*

A magnificent genus of ornamental trees and shrubs, thus far found only in the United States, China, and Japan. It is composed of evergreen and deciduous hardy and half-hardy trees and shrubs. The flowers are white, purple, or greenish white, and are remarkable for their fragrance. *M. acuminata* (Cucumber Tree) grows from thirty to fifty feet high, and is common in moist woods from New York to Ohio and southward. *M. glauca* (Small or Laurel Magnolia, Sweet Bay) is a low-growing deciduous tree, in some localities called Swamp Sassafras. It is also known by the name of Beaver Tree, because the roots are eaten by beavers, which animals also make use of the wood in constructing their huts or nests. This species is common in swamps in New Jersey and southward. The flowers are single, produced on the ends of the branches, greenish white, and delightfully fragrant. They are collected and sold in the markets and streets of New York in large quantities. *M. cordata* is the Yellow Cucumber Tree of Georgia. *M. grandiflora* (Great Laurel) is justly entitled to its specific name, as it is one of the most noble and beautiful of American evergreen trees, remarkable for the majesty of its form, the magnificence of its foliage, and the beauty of its flowers. This is a large tree, growing from sixty to one hundred feet high; the foliage is thick, brilliant on the upper surface, and rusty colored underneath; the flowers are pure white, six to eight inches across, and very fragrant. It is a native of the Carolinas and westward, but not hardy north of Washington. There is one specimen in Philadelphia, well protected, that blooms annually. *M. macrophylla* is a comparatively rare species, being only occasionally met in the woods from Florida to Tennessee. It rarely attains a height of sixty feet. It is a deciduous tree of perfect form, with leaves from one and a half to three feet long, clustered at the summit of the branches. The flowers are pure white, with a purple spot at the base of the petals, and are from eight to twelve inches in width, and deliciously fragrant. This species is not considered sufficiently hardy to withstand the severity of our winters. It is to be regretted that it has such a reputation, as it is in a great measure unjust. It might not succeed in the more exposed situations, but there is scarcely a fine suburban place around New York that has not some sheltered, cosy corner in which this noble tree would not delight to grow. There is upon the Manice estate at Queens, Long Island, a tree of this species that was planted more than fifty years ago, and is now fifty or more feet high, with a boll a foot in diameter. There is upon this tree every year hundreds of flowers, and it is no less conspicuous in autumn, with its large heads of bright scarlet fruit. It also does well up the Hudson River. Young trees are easily produced from seed. As soon as the seed is ripe, it should be gathered, and kept in common brown sugar during the winter, and sown in early spring. *M. conspicua*, or *M. Yulan*, is a native of China, where it attains a height of forty or fifty feet. It is perfectly hardy in this latitude, and remarkable for the great number of white flowers produced in spring, before the leaves are developed. *M. purpurea*, a Japanese species, has deciduous leaves, like the former, and is in all respects similar, except that the flowers are purple outside and white within. These two species contrast finely when planted together upon the lawn. *M. fuscata*, a greenhouse evergreen from China, is a low-growing shrub, with small glossy leaves, and dull purple flowers of exquisite fragrance. There are many other species and varieties, but those described are the best representatives.

Mahernia. An *anagram* of *Hermannia*, an allied genus. *Linn. Monadelphia-Pentandria.* Nat. Ord. *Byttneriaceæ.*

A genus of neat little green-house shrubs, growing about two feet high, and remarkable for the profusion of their fragrant yellow, or red and yellow flowers. *M. odorata*, the yellow, is the best known. They are easily grown in the green-house with ordinary treatment. All the species are from the Cape of Good Hope, and were introduced early in the present century. They are increased by cuttings.

Mahogany Tree. See *Swietenia.*

Maiden Hair Fern. See *Adiantum.*

Maiden Hair Tree. See *Salisburia.*

Maize. See *Zea.*

Malcolmia. Named after *W. Malcolm*, a celebrated nurseryman. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

A genus of herbaceous plants, mostly annuals. The species are chiefly natives of the south of Europe, and produce white or purple flowers disposed in racemes. Most of the species are but little grown. *M. maritima* is the well-known Virginian Stock of our gardens. They all grow from seed sown in spring.

Mallow. See *Malva.*

Malope. From *malos*, soft or tender; referring to the texture of the leaves. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

Annual plants with very handsome flowers. *M. trifida*, of which there are two kinds, one with crimson and the other with white flowers, is rather dwarf; but *M. grandiflora* will grow four or five feet high in a good soil and an open situation, bearing very large and showy brilliant crimson flowers. All the kinds are quite hardy, and only require sowing in April or May in the open border, and thinning out and transplanting, when the young plants are three or four inches high. Natives of North Africa. Introduced in 1808.

Malva. Mallow. From *malacho*, to soften; referring to their emollient qualities. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

This is a group of plants remarkable for their large, showy flowers; but the coarseness of the leaves and loose manner of growing deprive the genus of much of the interest it would otherwise have. The genus consists of tender, half-hardy, and hardy perennials and annuals, all of the easiest culture, according to their respective kinds. *M. moschata*, the Musk-Mallow, derives its name from the peculiar musky odor given off by all parts of the plant when kept in a confined situation, particularly in dry weather; but it is seldom powerful enough to be smelt in the open air. This species is a hardy herbaceous perennial, common in waste places in Great Britain. *M. rotundifolia* has become naturalized until it is quite a nuisance in our gardens and yards.

Malvaviscus. See *Achania.*

Mammee Tree. See *Mammea.*

Mammee Apple. See *Mammea.*

Mammea. Mammee Tree. *Mamey* is the native name. *Linn. Polyandria-Monogynia.* Nat. Ord. *Clusiaceæ.*

M. Americana, a native of the West Indies, produces the Mammee Apple, or South American Apricot, which is very much valued in

tropical countries. It often attains the size of a child's head, and is of a yellow color. The outer rind and the pulp which immediately surrounds the seeds are very bitter, but the intermediate is sweet and aromatic, and is eaten cut into slices and steeped in wine, or made into preserves of various kinds.

Mammillaria. From *mamma*, the nipple; in allusion to the small tubercles. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

Succulent plants, with almost globular stems covered with prickles, but without leaves, the flowers growing out of the stem without any stalk. These plants are natives of the high tableland of Mexico, where they are subject to very few variations of temperature, and they should, therefore, be kept in green-house heat all the year. They are also found in Texas and Colorado. In their native country they grow in rich loam, and therefore require a better soil than the different kinds of Cereus and Echinocactus, which grow among calcareous rocks, in the mould formed by the deposition of vegetable matter in the fissures. By attending to these particulars the Mammillarias may be easily grown in any situation where they can be kept free from frost. When kept in a room, they should be allowed as much air as possible, and the dust which lodges among their spines should be frequently blown off with a small pair of bellows or the breath. There are nearly one hundred species in this genus, and nearly all confined to Mexico and South America. Propagated by offsets or by seeds. First introduced from Peru in 1799.

Mammoth Trees of California. See *Sequoia.*

Mandarin Orange. See *Citrus nobilis.*

Mandevilla. Named after *H. J. Mandeville*, an English minister at Buenos Ayres, and a botanical collector. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

M. suaveolens, the only species, is a native of South America, and is a desirable climber for the green-house, as it is a rapid grower, and produces clusters of very sweet-scented white flowers during the summer. It should be allowed to rest during winter. It is propagated by cuttings of the small, stiff side shoots, taken off close to the old wood. Introduced in 1837.

Mandrake. See *Podophyllum*, *Mandragora*, and *Jaborosa.*

Manettia. In honor of *Xavier Manetti*, prefect of the Botanic Garden at Florence, and author of "Regnum Vegetabile," 1756. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

An elegant family of green-house climbers, suitable for training over a wire trellis attached to the pots in which the plants grow. The species delight in a moderately warm and moist atmosphere when they are growing, and in the case of having tuberous roots, like *M. glabra* or *M. cordata*, are all the better for a decided drying through the winter. The other species, from having only fibrous roots, will not bear a reduction to the same extent. *M. bicolor* is a winter-flowering plant. It should be grown freely through the summer, and afterward be placed in a dry, warm position to induce it to flower freely, and to preserve its foliage from mildew, to which it is very subject. The flowers of this species are yellow and crimson; those of the others are scarlet, except *M. Lygistum*, which has pink blossoms. All the species do well here planted out during summer, keeping up a continuous bloom. Propagated by cuttings, either of the roots or shoots. Introduced from South America in 1806.

Mangel Wurzel. *Beta vulgaris macrorhiza.*

Mangifera. Mango Tree. From *mango*, the Hindoo name of the fruit, and *fero*, to bear. *Linn. Polygamia-Monœcia.* Nat. Ord. *Anacardiaceæ.*

M. Indica grows abundantly in India, where numerous varieties are cultivated. It is also grown in Brazil and the Mauritius for the fruit, which is highly esteemed for its grateful acidity and sweet perfume. In the tropics it is the principal fruit eaten. The tree grows about twenty feet high, and the fruit is produced in terminal clusters.

Manglesia. Named after *Captain Mangles*, and his brother, *Robert Mangles*, distinguished patrons of botany. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Proteaceæ.*

A genus of ornamental green-house shrubs from Swan River, with very small flowers of little beauty. It is grown only for its beautiful foliage.

Mangosteen. See *Garcinia.*

Mango Tree. See *Mangifera.*

Mangrove. See *Rhizophora.*

Manicaria. From *manica*, a glove, referring to the spathe rolled around the inflorescence or flower stem. *Linn. Monœcia-Enneandria.* Nat. Ord. *Palmaceæ.*

A noble genus of Palms inhabiting the tidal swamps of the Lower Amazon River. *M. saccifera*, the only species, has immense leaves, unlike any others of the order, which are more or less pinnated or fan-shaped; these, on the contrary, are entire, frequently growing thirty feet long and from three to four in width; and being of a stiff habit, stand erect upon the summit of the stout, crooked stem, which usually attains the height of fifteen or twenty feet. The Indians call the Palm *Bussu*, and its immense leaves are invaluable to them for thatching their huts. The fibrous spathes are also converted into useful bags and caps by simply cutting round them near the bottom, and pulling them off entire, and afterward stretching them open as wide as possible without tearing; they also supply a coarse, but strong kind of cloth. On account of its immense size this interesting species is rarely met in collections. Propagated by seeds.

Man-of-the-Earth. See *Ipomœa.*

Manihot. Its Brazilian name. *Linn. Monœcia-Heptandria.* Nat. Ord. *Euphorbiaceæ.*

A genus of South American shrubs, largely cultivated for their roots, which yield the Tapioca of commerce, which is extracted from the bitter variety, the roots of which are a virulent poison. The poisonous juices are expelled by pressure in the preparation. One of the species has sweet, wholesome roots, that are used as vegetables.

Manna. See *Alhagi*, *Ornus*, and *Tamarix.*

Manna Ash. See *Ornus.*

Mantisia. Opera Girls. Named after the insect *Mantis*, to which the flowers have been compared. *Linn. Monandria-Monogynia.* Nat. Ord. *Zingiberaceæ.*

Hot-house herbaceous evergreens from the East Indies. One of the species has long been grown in some countries for the singularity and beauty of its flowers, which present some appearance of a ballet dancer, hence the popular name, *Dancing Girls*, applied to the plant. The filament and anther, with its wing-like margins, represent the head and neck of the lady, the long inner segments of the corolla represent the

arms, while the labellum corresponds to the dress. The flowers are purple and yellow. Propagated by root division. Introduced in 1808.

Maple. See *Acer*.

Maranta. Arrowroot. Named after *B. Maranti*, an Italian botanist. *Linn. Monandria-Monogynia.* Nat. Ord. *Marantaceæ*.

A genus of tropical herbaceous plants, pretty extensively disseminated from the West to the East Indies. Some of the species are among the finest ornamental leaved plants in cultivation. *M. zebrina* has leaves two feet long and six inches wide, of a rich deep green, beautifully shaded with a purplish green, and has a soft appearance, resembling the finest velvet. It is a native of Brazil, and was introduced in 1815. Many other well-known species are equally ornamental, and occupy a prominent position in choice collections. Several of the species are cultivated in the East and West Indies for the starch that is contained in their tubers, which is very nutritive, and is commercially known as Arrowroot. The term Arrowroot is said to be derived from the fact that the native Indians used the roots of these plants as an application to wounds inflicted by poisoned arrows. The green-house kinds are of easy culture, heat and water being the main requirements while growing; they should also be shaded from the sun. We have found it an excellent and economical plan to grow them during the summer months in between large foliaged plants, such as Palms, which gives them the necessary conditions of shade and moisture. Increased by division. See *Calathea*, to which many *Marantas* have been transferred.

Marattia. Named after *J. F. Maratti*, an Italian botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ*.

Coarse-growing Ferns, of but little merit in a collection. They require a hot-house. They are natives of South America, and the Eastern and Pacific Islands. Propagated by spores.

Marcgravia. In honor of *George Marcgrave*, a German who published a Natural History of Brazil in 1718. *Linn. Polyandria-Monogynia.* Nat. Ord. *Marcgraviaceæ*.

M. umbellata, one of the best known species, is a sub-parasitical creeping shrub. At first it is radicant, like some Ferns; but as it advances the stem becomes shrubby, adhering still by its fibers to the trunk of some tree, to the top of which it frequently runs, at length dividing into loose pendulous branches, commonly terminating with umbels of white flowers. It is a native of the cool wooded mountains of Jamaica. It appears in such a variety of forms that it has been mistaken for different plants in the different stages of its growth. The genus is remarkable for the transformation of its smaller leaves into hollow, tubular bodies, resembling the pitchers of some other plants. It succeeds well in the green-house, and is propagated by cuttings.

Mare's Tail. See *Hippurus*.

Marianthus. From *Marian*, Mary, and *anthos*, a flower; dedicated to the Virgin Mary. *Linn. Pentandria-Monogynia.* Nat. Ord. *Pittisporaceæ*.

A small genus of green-house deciduous climbers, natives of Australia. One species has pretty pale blue, spotted flowers, but it is seldom cultivated. Propagated by cuttings. Introduced in 1840.

Marica. From *maraino*, to flag; referring to the ephemeral nature of the flowers, which last hardly a day. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ*.

A small genus of fibrous-rooted plants, with very beautiful, but transient flowers, somewhat resembling the *Tigridia*. They all grow freely, and are increased by division, or from seed. They require the protection of the green-house while at rest during winter. They are natives of Central and South America, and were first brought into notice in 1782.

Marigold. See *Calendula* and *Tagetes*.

Marjoram. See *Origanum*.

Marking Nut Tree. See *Semecarpus*.

Marrubium. Horehound. From *marrob*, a Hebrew word signifying a bitter juice; in allusion to the extreme bitterness of the plants. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ*.

M. vulgare is the common Horehound of our gardens. The plant is a native of Europe, but has become naturalized, and is as familiar as an indigenous plant in the United States. Of the several species, this is the only one valued, and this only for its tonic properties.

Marshallia. Named for *Humphrey Marshall*, of Pennsylvania, author of *Arbustrum Americanum*, one of the earliest works on the trees and shrubs of this country. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ*.

A genus of herbaceous perennials, common to Virginia and southward. The leaves are alternate, entire, and glabrous; flower scape about one foot high, with a single terminal head of purple or rose flowers, resembling those of the Scabious.

Marsh Mallow. See *Althæa*.

Marsh Marigold. See *Caltha*.

Marsh Rosemary. See *Statice*.

Marsilea. Linnæus dedicated this genus to the *Count L. F. Marsigli*, founder of the Academy of Sciences, Bologna. *Linn. Cryptogamia-Musci.* Nat. Ord. *Marsileaceæ*.

A genus of curious, low-growing aquatics, inhabiting Brazil, Australia, Africa, and the south of Europe. They are termed pseudo-ferns, and are very interesting plants for the aquarium.

Martinezia. In honor of *Balthassar Martinez*, a Spanish naturalist. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ*.

A small genus of Palms, mostly of dwarf habit, natives of Central America. A few of the species are under cultivation for decorative purposes.

Martynia. Named after *Dr. Martyn*, once Professor of Botany at Cambridge, England; he died in 1768. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Pedaliaceæ*.

A genus of hardy and half-hardy annuals, growing from two to three feet high, branching, with heart-shaped leaves, the whole being covered with clammy hairs. Some of the species are quite ornamental, but too coarse-growing for a handsome border plant. *M. proboscidea* is indigenous to southern Illinois and southward, but is most common on the banks of the Mississippi. It is grown in the garden for the young seed pods, which are used to some extent for pickling. They require to be placed three feet apart each way; at that distance, in rich soil, the plants will completely cover the ground. Seed should be sown where it is to grow in April and May.

Maruta. The generic name of *May-weed*. See also *Cotula*.

Marvel of Peru. See *Mirabilis*.

Masdevallia. Named after *J. Masdevall*, a Spanish botanist. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

An extensive genus of epiphytal Orchids from South America. The flowers are remarkable for their singularity, and also for their beauty. They require to be grown in a lower temperature than most Orchids, and are increased by division. First introduced in 1835.

Massonia. Named after *F. Masson*, a botanical traveler in South Africa. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus of small Cape bulbs. The leaves are commonly two in number, lying flat on the ground. The flowers are in an umbel-like head, nearly sessile, between the leaves. The flowers are sword-shaped, usually white, and of little beauty. They are increased by offsets. They may be wintered in a frame or kept in sand in the green-house. Introduced in 1791.

Mathiola. Stock-Gilliflower. Named after *P. Mathioli*, an Italian botanist. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

In this genus we have the well-known Stock in all its multifarious varieties. These, for the purposes of culture, are classed in two divisions: the biennial kinds, as the Brompton, Queen, etc., and the annual or Ten-Week Stocks. The former require to be sown the season previous to that in which they are wanted to flower. They do best when sown in May or June in the open air, allowing them to grow up strong, and when about two inches high they should be potted singly in small pots. This is for the purpose of protecting them through the winter, as in very severe weather, or a long continuance of wet, they perish; but being potted and put in a frame they are perfectly safe, as they become harder and better ripened, and in the succeeding spring may be placed where they are to bloom. The seeds of Ten-Week Stocks should be sown in a hot-bed or green-house in February or March. As soon as the plants have completed their second leaves, prick out into shallow boxes, and in three or four weeks they will be ready to pot in thumb pots, and the plants will be sufficiently large for transplanting by the end of the following April. Much attention is paid to the saving of this seed on the Continent, and as many as twelve distinct colors may now be selected; a great many more are advertised, but they are indistinct, and we think it preferable to have a few decided and brilliant colors than a multitude of indefinite shades, several of which are nearly duplicates of each other. The colors run through all the shades of crimson, lilac, rose, white, etc. There are no true scarlets, though some catalogues continue yearly to offer such colors. One of the first requisites to insure good double Stocks is to put the ground intended for them in the very best possible condition. It is a great mistake, and but too common, to suppose that the soil for flowers need not be rich; for we are of opinion, from observation, that, to a great extent, the double state is only brought about by excess of vigor, and if this condition is lost by planting in impoverished ground, it is only reasonable to suppose that the flowers will degenerate to their normal condition. Another common error deserves notice, respecting the choice of plants to bear seed. It is very generally supposed that, to insure seed which will produce double flowers in the following season, it is necessary that the seed-bearing plants

stand in close proximity to others which have their flowers double, because it is supposed the single flowers are impregnated with the pollen of the double ones; but to prove the fallacy of this supposition it is only necessary carefully to examine the latter, and they will be found altogether devoid of the organs bearing pollen. The great secret in the production of seed likely to bring double flowers is, we believe, to impart extraordinary vigor to the single plants which are to bear it, and every means available should be resorted to for this end. There is no good reason why as good seed should not be grown in some portions of the United States as in any part of the world. In fact, the finest Stocks we have ever seen grown were from seed saved in the western part of the State of New York, and that from Stocks that had been grown a number of years in order to fairly test the question as to whether that as well as other seeds cannot be produced as well here as in Germany; and the question is settled, that one of our large dealers grows and saves his own seed, and that which gives the greatest satisfaction to his customers. To save seed let the largest pods from the strongest plants be selected, and the seed placed in good ground, and there will be no lack of double flowers. The Intermediate Stock is an excellent kind to grow in pots for early spring decoration. The seed should be sown about midsummer for this purpose, and the young plants, after being potted, should be brought up as robust as possible; keeping them in frames through the winter until they are in bloom, when they tend to make the green-house gay in March, and in April may be turned into the flower garden, where they continue to bloom for a length of time. Double varieties may be perpetuated by striking the side shoots at midsummer, under a hand-glass, as is practiced with pinks, but this trouble is hardly necessary if the foregoing directions are observed. There are several other species included in the genus, only one of which, however, is often seen beyond the precincts of the purely botanical collection; this one is the *Mathiola tristis*, or Night-smelling Stock. It is a curious looking plant, with narrow, glaucous foliage, and small, lurid colored flowers, emitting an agreeable fragrance in the evening, and on this account is yet preserved along with its more gay associates. It requires to be grown in the green-house, with the ordinary management of plants belonging to this structure, and is readily increased by cuttings. *M. annua* is the original of all the varieties of the Ten-Week Stocks, and *M. Græca* of the wall-leaved or smooth-leaved Annual Stock; both of which are natives of the south of Europe, and were favorably mentioned as "flowers for the garden for pleasure" by Parkinson in 1629.

Matricaria. Wild Chamomile. From *matrix*, the womb. *Linn. Syngenesia-Digynia.* Nat. Ord. *Asteraceæ.* A common weed.

Matrimony Vine. See *Lycium.*

Maurandya. Named after *Professor Maurandy*, of Carthagena. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

A handsome genus of tender climbing perennial plants from Mexico. The colors are violet, pink, purple, and white. All the species are profuse bloomers, and may be treated as annuals. The seed should be sown in February or March, in a hot-bed or in the green-house, and pricked out into shallow boxes, and then

into small pots, and grown on until it is time to plant out tender annuals. They are admirable for any sunny situation where a delicate climbing plant is required. They commence to flower in August, and continue until after there has been six to eight degrees of frost. By taking the roots up in the fall, potting, and placing them in a cool green-house or warm cellar, they can be planted out again in spring, and will come into flower much earlier than plants grown from seed. There are two erect growing species from California that we have not yet had an opportunity to test. The genus is allied to *Antirrhinum*, to which the flowers have a great resemblance. The *Maurandya* is also propagated by cuttings. Introduced in 1796.

Mauritia. Named after *Prince Maurice* of Nassau. *Linn. Dicœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A genus of Palms peculiar to tropical South America. They grow to an immense size, some species attaining the height of a hundred or a hundred and fifty feet. They bear a crown of enormous fan-shaped leaves, from among which the pendulous flower-spikes are produced. The species are abundant on the banks of the Amazon, Rio Negro, and Orinoco Rivers. They usually occupy swampy tracts of ground, which are at times completely inundated, and present the appearance of forests rising out of the water.

Mawseed. See *Papaver somniferum.*

Maxillaria. From *maxilla*, the jaws of an insect, referring to a resemblance of the columns and labellum. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

An extensive genus of epiphytal Orchids. Many of the species are very beautiful, and of delicious fragrance; others, on account of their small flowers, are not worthy of cultivation. Some of them have their flowers hanging down from the roots, and are grown in baskets of moss or on pieces of cork, or hung by wires to the rafters of the Orchid house. All of them are adapted to the cool house.

Maximiliana. Named after *Prince Maximilian. Linn. Polygamia-Monœcia.* Nat. Ord. *Palmaceæ.*

M. regia, the only known species, is an immense growing Palm of the Amazon. Its trunk often exceeds a hundred feet in height, and is crowned with leaves from thirty to fifty feet long, and its woody spathes, when open, frequently measure as much as five or six feet in length, by about two feet in width, tapering to a long point or beak. These spathes are so hard that, when filled with water, they will stand the fire, and are sometimes used by the Indians as cooking utensils, but more frequently as baskets for carrying their stores.

May Apple. See *Podophyllum.*

May Flower. See *Epigæa.*

May Weed. The popular name of the genus *Maruta.*

Meadow Beauty. See *Rhexia.*

Meadow Grass. See *Poa pratensis.*

Meadow Rue. See *Thalictrum.*

Meadow Saffron. See *Colchicum.*

Meadow Sweet. See *Spiræa.*

Meconopsis. From *mekon*, the poppy, and *opsis*, like. *Linn. Polyandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

A genus of hardy herbaceous perennials, common in Wales, where it is known as Welsh Poppy. It is a showy plant, growing about one foot high, with bright green pinnate, hairy leaves, slender stems, and large terminal, remarkably short-lived flowers, which droop while in bud, and are a delicate sulphur yellow color. Propagated by seeds or by division.

Medeola. Indian Cucumber Root. Named after *Medea*, the sorceress. *Linn. Hexandria-Trigynia.* Nat. Ord. *Trilliaceæ.*

M. Virginica, the only species, is a hardy herbaceous perennial, common from Virginia southward. It has a creeping, tuberous root, tasting like a Cucumber, from which the plant derives its local name, Indian Cucumber. It has an erect, simple stem, with sessile leaves produced in whorls, with a terminal umbel of small greenish-yellow flowers.

Medicago. Medick. From *mediko*, a name given by Dioscorides to a Median Grass. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of weedy-looking plants, with yellow pea-flowers, which are generally single or in small clusters. The seed-pods of many of the species are very curious, some resembling snails, others hedgehogs, and others bee-hives. They were formerly found in seedsmen's catalogues under these various names, and recommended to garnish dishes of meats, etc. They are now seldom met, as the plants to which they belong are found not worth growing. *M. sativa* is the well-known *Alfalfa*, or *Lucerne*, now extensively used in California and many other parts of the world as a forage crop. It is particularly fitted, from its deep-rooting properties, for dry, barren soils. In some sections of California five crops are cut annually, and at this writing it is considered the most valuable forage crop of the State.

Medick. See *Medicago.*

Medinilla. Named after *J. de Medinilla y Pineda*, Governor of the Marianne Islands. *Linn. Decandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

A small genus of East Indian evergreen shrubby plants, with large fleshy leaves, and large panicles of white or rose-colored flowers. The species generally met in our green-houses is *M. magnifica*, a plant that truly deserves the name. Its enemy in the green-house is the mealy bug, which is very sure to find it. It requires considerable heat to grow it in perfection. Propagated by cuttings. Introduced in 1848.

Medlar. See *Mespilus.*

Megaclinium. From *megas*, large, and *kline*, a bed; referring to the axis or rachis on which the flowers are borne. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids of tropical Western Africa, remarkable for the curious flattened, sword-shaped flower stalks, upon which the curious little flowers are seated in a straight row along the middle on both sides. The flowers are of a greenish or yellowish brown, spotted more or less with purple. Some of them have a fancied resemblance to little frogs or toads, whence one species has been named *M. bufo.* They are seldom met except in large collections.

Melaleuca. From *melas*, black, and *leukos*, white; referring to the colors of the old and young bark. *Linn. Polyadelphia-Polyandria.* Nat. Ord. *Myrtaceæ.*

The genus consists of evergreen trees and shrubs, natives of Australia and the Islands of the Indian Ocean. They have alternate flat or cylindrical leaves, and yellowish, purple, or crimson flowers, produced in axillary clusters. *M. cajeputi* is one of the more important species, the leaves of which, after fermentation, are distilled for the purpose of yielding the well-

known Cajeput Oil, which is green, and has a powerful aromatic odor, and is highly valued as a preservative of all preparations of natural history. The leaves of this species are used as a tonic, and the bark is used as oakum and for thatching houses. Numerous species are grown as green-house plants, on account of the simplicity of their foliage and the beauty of their clustered flowers. *M. major* is an old green-house plant, the leaves of which have a peculiar odor, which has given it the name of "Pease Meal Plant."

Melanthium. From *melos*, black, and *anthos*, a flower; referring to the dusky flowers. *Linn. Hexandria-Trigynia.* Nat. Ord. *Melanthaceæ.*

A small genus of half-hardy bulbs, requiring the protection of the green-house or pit during winter. The flowers are white, yellow, or pink, and some with nearly black flowers. All have very much the appearance of small Ixias. They grow in a light soil, and flower in early summer. They are increased by offsets. Introduced in 1797.

Melianthus. Honey Flower. From *mel*, honey, and *anthos*, a flower; the tubes contain a copious supply of honey-like juice. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Zygophyllaceæ.*

A small genus of ornamental shrubs or small trees from the Cape of Good Hope, producing axillary or terminal clusters of purple flowers, from which the natives obtain honey for food by shaking the branches. They are rarely, if ever, introduced into the green-house, and it is difficult to make them flower.

Melilotus. Sweet Clover. From *meli*, honey, and *lotus*, the honey lotus. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

This genus consists of about twenty species, mostly belonging to Southern and Central Europe and Western Asia. Some of the species are grown in their native countries as forage plants. *M. officinalis*, with yellow flowers, and *M. alba*, with white flowers, are common on the roadsides in the United States, having become naturalized from Europe.

Melissa. Balm. From *melissa*, a bee; literally, a bee-flower. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

Hardy herbaceous perennials. The different species are widely diffused, being found throughout Europe, Middle Asia, and by naturalization in the United States. *M. Romana* has varieties having leaves finely marked with yellow and white, known as Golden and Silver Balm. Both are delightfully fragrant. They are all hardy perennials, and are propagated by cuttings and by dividing the roots.

Melocactus. Melon Thistle. From *melos*, a melon, and *cactus*; in allusion to the appearance of the plants. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

A sectional genus of Cactus, differing from Echinocactus in having the flowers produced on a head or cushion covered with dense, woolly, and bristly hairs, called atomentosum, while those of the Echinocactus issue from the bare ribs or angles. *M. communis*, the Turk's Cap Cactus, so called from the flowering portion on the top of the plant being of a cylindrical form and red color, like a fez cap, is a fair representative of this class. In South America and in many of the West Indian Islands it is very common, covering large tracts of barren soil. Notwithstanding the arid places in which they grow, they contain a considerable quantity of moisture, and the mules resort to them when hard pressed for water, carefully removing the spines with their fore-feet previous to quenching their thirst with the juice.

Melon. See *Cucumis.*

Melon Thistle. See *Melocactus.*

Menispermum. Moon-seed. From *mene*, the moon, and *sperma*, a seed; the fruit is kidney or half-moon shaped; whence the English name Moon-seed. *Linn. Dioecia-Decandria.* Nat. Ord. *Menispermaceæ.*

A small genus of handsome climbing shrubs, natives of the Northern States and Europe, with curiously-shaped leaves, racemes of yellowish or greenish-white flowers, and red or black berries, which have somewhat of an intoxicating quality. *M. Canadense*, which is the commonest species, is a hardy, free-growing climber, admirably adapted for covering a wall or arbor in a very short time, and in a very ornamental manner. It is well deserving of general cultivation, and yet it is comparatively little known, perhaps on account of the modest color of its elegant little drooping racemes of flowers, which are generally hidden from common observers by the leaves. It looks very well on a lawn trained up a single pole, and with the extremity of its branches left to spread themselves to the wind at pleasure. It also looks very well trained to form a pillar, or to a frame with an umbrella-top, etc. Propagated by cuttings, or from seed sown in spring.

Mentha. Mint. The Latin version of the Greek name *Mintha*, borne by the daughter of Cocytus, who, according to the poets, was metamorphosed into a Mint plant by Proserpine in a fit of jealousy. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A well-known genus of useful herbs. The species are pretty generally distributed throughout the cooler parts of the world, but most common throughout Europe. They have, through naturalization, become quite common in many parts of the United States. *M. piperita* is the well-known Peppermint. It is extensively cultivated in Wayne County, N. Y., for the sake of its volatile oil, which is procured by distilling its leaves. *M. viridis*, or Spearmint, is the plant that is used for culinary purposes under the name of Mint. This species is extensively forced or forwarded under glass, and thousands of dollars' worth of it are sold in the winter and spring months in the markets of New York. *M. Pulegium* is the true Pennyroyal, a native of Great Britain, like the preceding species. (The plant known as Pennyroyal of our woods is an annual, *Hedeoma pulegioides*, American Pennyroyal.) The species are abundantly propagated by suckers, division, or cuttings, and but rarely produce perfect seed. The only difficulty in their cultivation in the private garden is in keeping them within bounds. *M. citrata* is the species from which the Oil of Bergamot is extracted, a native of Europe.

Mentzelia. Named in honor of *C. Mentzel*, a German botanist. *Linn. Icosandria-Monogynia.* Nat. Ord. *Loasaceæ.*

A genus of hardy annuals and perennials, mostly with large white, showy flowers; common on the western plains. *M. albicaulis*, a low-branching plant from six to ten inches high, with white polished stems, and deeply cut, lance-shaped leaves, is found abundantly on the arid, sandy plains of Oregon and California. It produces oily seeds that the Indians pound up

and make into cake, which forms part of their food. They are all easily raised from seed.

Menyanthes. Buck Bean. From *men*, a month, and *anthos*, a flower; the time of duration. *Linn. Pentandria-Monogynia.* Nat. Ord. *Gentianaceæ.*

The European kinds have white flowers, but some of the exotic species, now called *Villarsia*, which are natives of Australia and the Cape, are very handsome, with very showy yellow flowers. They are all marsh plants, and should be sown or planted in the mud or soft ground left by the water. Some of the kinds are only half-hardy. *M. trifoliata*, an escape from Europe, is common in moist places from New England north and westward. It produces racemes of very pretty white or slightly reddish flowers, about one foot high.

Menzesia. Named after *A. Menzies*, surgeon and naturalist to the expedition under Vancouver. *Linn. Octandria-Monogynia.* Nat. Ord. *Ericaceæ.*

The several species that constitute this genus are small, handsome, heath-like shrubs, natives of the North American coast. The flowers are larger and more globular than the common Heath, and much handsomer; they are terminal, either singly or in clusters. Propagated by layers in autumn, or by cuttings. Introduced in 1810.

Merendera. A name given to *Colchicum* by the Spaniards, and applied to this genus because of its affinity. *Linn. Hexandria-Trigynia.* Nat. Ord. *Melanthaceæ.*

M. Caucasica, the only species, is a hardy bulb with purple flowers, from the Caucasus. It grows freely in the garden with the same treatment as is given to other hardy bulbs. It is usually classed with *Bulbocodium*. Propagated by offsets. Introduced in 1823.

Mermaid Weed. The popular name of the genus *Proserpinaca*, a common plant in sandy swamps near the coast.

Mesembryanthemum. Fig Marigold, Ice Plant. From *mesembria*, midday, and *anthemon*, a flower; referring to the flowers opening better on sunny days. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Mesembryaceæ.*

This genus consists of nearly four hundred species, more than one hundred and fifty of which have been introduced and highly recommended for the flower garden. They are very succulent, and grow in hot, sandy plains, the genus being almost entirely confined to the Cape of Good Hope. Their leaves are very variable in form, but almost always of a thick, fleshy texture; the flowers, which embrace all shades of orange, crimson, pink, white, etc., are most of them very beautiful, the petals of brilliant colors and of a lasting nature, with a handsome center. They only expand in the sunshine, and are well adapted for a hot situation, one in which but little else would thrive well. *M. crystallinum*, a native of the Canary Islands and Greece, as well as of the Cape of Good Hope, is the common Ice Plant of our gardens, so called in consequence of every part of the leaf and stalk being covered with small watery pustules, which glisten in the sun like fragments of ice. Large quantities of the plant are collected in the Canaries and burned, the ashes being sent to Spain for the use of glassmakers. The English name of Fig Marigold is applied to *M. edule*, the fruit of which is shaped like a fig, and which is eaten by the Hottentots; and to the flower, which resembles that of the Marigold in shape, and sometimes in color. *M. cordifolium variegatum*, a variety of late introduction, is remarkable for the distinct variegation of its leaves, white and green. It is a free-growing plant, well adapted for rockeries, vases, or edgings to beds or ribbon borders. This variety is increased by cuttings, as the variegation is not constant in plants grown from seed. All the species are easily increased by cuttings.

Mesospinidium. From *mesos*, medium-sized, and *spinidium*, a bird. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of beautiful little Orchids from the Andes of Peru, nearly allied to *Odontoglossum*. *M. sanguineum* is one of the most showy species, and interesting on account of its nodding racemes of rosy flowers. The species are rarely seen in collections. They may be grown in a cool house, and must be sparingly watered. They are increased by division. Introduced in 1867.

Mespilus. Medlar. From *mesos*, half, and *pilos*, a ball; referring to the shape of the fruit of the Medlar. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Pomaceæ.*

A genus of low-growing, hardy deciduous trees, common to Europe. They are ornamental, and produce an edible fruit of but little value. They are grown in shrubberies, like the Hawthorn, which they resemble.

Mesua. Named after *Mesue*, the father and son, two celebrated Arabian physicians and botanists, who resided at Damascus, and flourished in the eighth and ninth centuries. *Linn. Monadelphia-Dodecandria.* Nat. Ord. *Clusiaceæ.*

A small genus of tender evergreen trees from tropical Asia, remarkable for their beautiful foliage, and large, pure white axillary flowers, which are highly fragrant. The flowers are sold in all the Indian bazaars, both fresh and dried, under the name of Nagkesur, being held in high esteem on account of their fragrance.

Metrosideros. From *metra*, heart-wood, and *sideros*, iron; referring to the hardness of the wood. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myrtaceæ.*

A genus of lofty trees, climbers, and shrubs, natives of New Zealand. *M. robusta* is a tall tree, with a stout, erect trunk, and a branching head of myrtle-like foliage, and showy scarlet or crimson flowers. The wood of this species is very valuable for ship timber. *M. tomentosa* is called the *Fire Tree* by the colonists, on account of its brilliant flowers. One or two species are under cultivation in green-houses, where their bright scarlet flowers are very effective. Propagated from cuttings of the young wood. Introduced in 1787.

Mexican Tea. See *Chenopodium.*

Mexican Thistle. See *Erythrolæna.*

Mexican Tiger Flower. See *Tigridia pavonia.*

Mezereon. See *Daphne Mezereon.*

Michauxia. Named after *A. Michaux*, a French botanist. *Linn. Octandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

A genus of hardy biennials chiefly found in the Levant. They are allied to the Campanulas, but inferior in merit. They are of easy culture. Propagated by seeds. Introduced in 1787.

Michelia. Named after *P. A. Micheli*, a famous Florentine botanist, who died in 1757. *Linn. Polyandria-Polygynia.* Nat. Ord. *Magnoliaceæ.*

A lofty evergreen tree, native of India and the islands of the Eastern Archipelago. *M. Champaca*, the only known species, is cultivated in India for the powerful fragrance of its flow-

ers, which is said to be so strong that bees seldom if ever alight on them. The tree is sacred to Vishnu, and is therefore an object of superstitious regard on the part of the Hindoos, who adorn their dark hair with the rich orange-colored flowers. It has seldom been introduced into the green-house, and where tried it has not proved an acquisition.

Midshipman's Butter. See *Persea.*

Mignonette. *Reseda odorata.* This well-known plant is generally treated as an annual, and sown every year as such; but it is, in fact, a shrub, and if preserved carefully through the winter, in two or three years its stem will become quite woody. In this state it is called the Tree Mignonette, and is supposed by many to be a different species. It is a native of Barbary, and grows wild on the sandy shore of Algiers. The name Mignonette, which is French for "the little darling," is supposed to have been given to it on account of its seeds having been first sent to England from Paris. It is rather singular, however, that it should be known by a French name in England, while in France and Germany it is called by its Latin name of Reseda. Mignonette should always be sown in light, sandy soil, if possible ; as, when grown in a rich loam, it loses its fragrance. With a little management, it may be contrived to have Mignonette in flower every month during the year without the aid of a regular gardener. In order that the plants may flower in winter, the seed should be sown in the open border in July; or, if it be more convenient, the seeds may be sown in pots in that month, placing the pots in any situation where they will have abundance of light and air. In September the plants should be put in the pots in which they are to flower, and only a sufficient number left in each to make the pots look full without the plants being so crowded as to occasion them to be drawn up. This number must, of course, vary according to the size of the pot; but it should never exceed eight, or be less than three. The pots should then be taken into the house, and placed in any convenient situation in a room without a fire, till they have formed their flower-buds, which will be the latter end of October, when they should be removed to a window in a room where the temperature does not exceed 50° at night, when they will throw out an abundance of branches, and will continue flowering beautifully during November, December, and January; and, if they are regularly watered every day, till the following March. The seeds of the plants which are to come into flower in March to succeed them, should be sown in pots at the latter end of August, and the pots may be placed in a spare bedroom, or in any place safe from frost, where they will have plenty of light, and can have air occasionally. Early in November they should be thinned out, so as to leave only six or eight plants in a pot. When it is wished to obtain a plant of Tree Mignonette, a healthy, vigorous plant of Mignonette sown in a pot in April should be selected, and the flower-buds should be taken off as fast as they appear. In autumn all the lower side-shoots should be cut off, so as to shape the plant into a miniature tree, and it should be transplanted into a larger pot, with fresh soil, formed of turfy loam broken small. It should then be removed to a green-house or warm room, and by being regularly watered every day, and kept tolerably warm, it will remain in a growing state all the winter, and by spring its stem will begin to appear woody. It should be treated in the same manner the following year, all the side branches being cut off as they appear, except those that are to form the head of the tree; and by the third spring it will have bark on its trunk, and be completely a shrub. It may now be suffered to bloom, and its flowers will continue to be produced every summer for a great many years in succession. Mignonette does best in a cool climate, our summers sometimes being too warm to grow it in perfection; but for fall flowering nothing can surpass its luxuriance, beauty, or fragrance. For this purpose, sow the seed in July or early in August, in a well-prepared bed of deep rich soil. It is of the utmost importance that the seeds of Mignonette, when sown in the hot months, should be well firmed. Our plan is to sow in drills two or three inches deep and eighteen inches apart. After sowing the seed it is carefully and regularly trodden down with the foot, and then raked lengthwise of the rows to make the ground level. In this way the seed will germinate in the hottest or dryest weather, while it is almost certain to fail if left loose. Thin the plants out to six inches apart each way, and from the first of September until quite cold weather there will be a profusion of flowers.

Mikania. Climbing Hempweed. Named after *Joseph Mikan,* Professor of Botany at Prague. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A genus of hardy and half-hardy twining plants, allied to Eupatorium. *M. scandens,* common from Long Island to Kentucky and southward, is a perennial, with axillary clusters of flesh-colored flowers. *M. violacea,* a tender species with dark velvet-like foliage, is now much used as a drooping plant for baskets, vases, etc. Propagated by cuttings.

Milla. Named after *J. Milla,* a gardener to the Spanish Court. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus with fleshy fibrous roots, frequently miscalled bulbs. They are chiefly natives of Mexico, and grow freely in the open border, producing white flowers, in pairs, on a slender scape about one foot high. They are increased by division. Introduced in 1826.

Milfoil. See *Achillea.*

Milium. *Millet Grass.*

Milk Tree. See *Brosimum.*

Milkweed. See *Asclepias* and *Euphorbia.*

Milkwort. See *Polygala.*

Milk Veitch. See *Astragalus.*

Millet Grass. The common name of *Milium.*

Miltonia. Named after the *Earl Fitzwilliam. Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

This small genus stands conspicuously prominent, even in the magnificent order to which it belongs, on account of the number and beauty of its flowers. Nor are they at all difficult of management, requiring only to be treated in the manner recommended for Brassia or Cattleya; and when grown into a tolerably good specimen, nothing can exceed the grandeur of *M. spectabilis* or *M. candida,* the large size and delicate white of the sepals and petals, contrasted with the rich crimson marking of the expansive lip of the former, when seen in any quantity, fully equal the most showy of the order. Either or both of the above should always be included in every collection of Orchids. The genus consists of about a dozen species, all natives of Brazil. Introduced in 1840.

MIM

Mimosa. Sensitive Plant. From *mimos*, a mimic; referring to the irritability of the leaves, as if imitating animal sensibility. *Linn. Polygamia-Monœcia.* Nat. Ord. *Fabaceæ.*

To this genus belongs the Sensitive Plant, of which there may be said to be three species, the leaves of all of which shrink to the touch, viz.: *M. sensitiva*, a native of Brazil, growing two to three feet high, with pale ball-like pink flowers; *M. pudica*, a native of Brazil, growing two to three feet high, with pink flowers; and *M. casta*, a native of the East Indies, growing about two feet high, with pale yellow flowers. *M. pudica* is the true Sensitive Plant, and the one that is usually grown. It is cultivated as an annual, and should be raised on a hot-bed or in the green-house in spring, with the tender annuals; and either kept in pots throughout the summer, or turned out into the open border about the end of May. Many species formerly included under the genus Mimosa are now removed to Acacia; the principal distinction between the genera being that Mimosa has a jointed seed-pod, which Acacia has not. Several other genera have also been formed out of Mimosa. Some of the kinds are hot-house plants; others thrive in a green-house; and *M. marginata*, Dec., the *M. prostrata* of the nurseries, is sufficiently hardy to stand the winter at the South. They are propagated by cuttings; the annuals by seeds. A singular fact in connection with the *Mimosa pudica* is said to be, that if chloroform be applied to the plant, its sensitiveness is suspended until the effects of the anæsthetic have passed off.

Mimulus. Monkey Flower. From *mimo*, an ape or actor; in reference to the ringent or gaping mouth of the flower. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

This genus is among the most ornamental of our hardy and half-hardy herbaceous plants. Two species have broken out into numberless varieties: these are *M. cardinalis* and *M. luteus*, and the former especially seems capable of bringing a great deal of variety to the aid of the flower-gardener. Both of these, and *M. moschatus*, or Musk Plant, as it is called, are valuable aids in that department, and are very generally grown for the purpose, being very prolific of flowers. They are easily propagated by seeds, cuttings, or division of the roots. All the species are natives of this country, mostly of Lower California, excepting *M. lutea*, which is a native of Chili, and was introduced in 1826.

Mint. See *Mentha.*

Mirabilis. Marvel of Peru. From *mirabilis*, wonderful, as everything was at first considered that was sent from South America to Great Britain. *Linn. Pentandria-Monogynia.* Nat. Ord. *Nyctaginaceæ.*

The varieties of *M. Jalapa*, or Marvel of Peru, are valuable ornaments of the borders of the flower garden. The seed should be sown in May where they are to grow, or they may be sown for early blooming in a hot-bed and transplanted in May along with Dahlias and such plants. Their after treatment closely resembles that of the former; they should be staked and tied in the same way, and on the approach of winter their large bulbous roots should be taken up and stored away in dry sand until the following spring, when in April they may be forwarded on a moderate hot-bed, and again in May be planted into the borders of the flower garden, or they may be planted at once in the border as soon as danger from frost is past. The whole of the genus are of one character, and may be treated alike. Plants from the old roots will come into flower much earlier than if grown from seed. The colors of the Marvel of Peru are various, one being pure white and very fragrant, while others are beautifully as well as curiously striped. Gerarde first notices this genus in 1596.

MOH

Mirbelia. Named after *C. F. B. Mirbel*, a physiological botanist of Paris. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

This genus consists of eight or nine species of Australian shrubs, with handsome yellow, purple, or bluish flowers. A few of the species are occasionally met in the more rare collections of green-house plants. They are evergreens, and produce their flowers in July. Propagated by cuttings. Introduced in 1825.

Missouri Currant. See *Ribes.*

Mist Flower. See *Conoclinum.*

Mist Tree. See *Rhus cotinus.*

Mistletoe. See *Viscum album.*

Mitchella. Partridge Berry. Named in honor of *Dr. John Mitchell*, an early correspondent of Linnæus, and an excellent botanist, who resided in Virginia. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

M. repens, the only species, is a low, creeping evergreen, widely distributed throughout the United States and Canada in dry woods. The flowers are white and fragrant, the fruit is scarlet and edible, but nearly tasteless, and remains on during the winter. The Partridge is very fond of it, whence the local name.

Mitraria. From *mitra*, a miter; referring to the seed-pod. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

M. coccinea, the sole representative of this genus, is a low-growing shrubby plant, native of the island of Chiloe. Its leaves are small, opposite, or sometimes trifoliate. The flowers are solitary, and of a bright scarlet color. It is a very beautiful plant for the green-house, or for planting out during the summer. Propagated by cuttings. Introduced in 1848.

Moccasin Flower. The popular name of our native *Cypripediums*, from the fancied resemblance of the flower to a moccasin or slipper.

Mock Orange Flower. See *Philadelphus.*

Mock Orange. See *Cucurbita.*

Modecca. The East Indian name. *Linn. Diœcia-Pentandria.* Nat. Ord. *Papayaceæ.*

A genus of evergreen climbing shrubs resembling Passion Flowers, natives of tropical Asia and Africa. The flowers are small and greenish white. Propagated by cuttings.

Modiola. From *modiolus*, the nave of a wheel; referring to the formation of the seed-vessel. *Linn. Monadelphia-Polygynia.* Nat. Ord. *Malvaceæ.*

A genus of annuals and herbaceous perennials allied to the Mallow. They are mostly unintersesting plants, with a low, creeping habit, and purple or crimson flowers. Natives of the Southern States and Brazil.

Mohria. Named after *M. Mohr*, a German botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of South African Ferns, consisting of but one species, *M. thurifraga*, a beautiful Fern, with the general appearance of *Woodsia obtusa*. It makes a splendid specimen plant, and may be grown in a cool green-house. Propagated by seed.

MOL

Moldavian Balm. See *Dracocephalum.*

Moltkia. Named after Count Gadske Moltke, a Danish noble. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ.*

M. cærulea, the only species, is a hardy herbaceous perennial, with beautiful blue flowers. It is a native of Persia, and grows freely with ordinary garden culture. Propagated by seeds or root division. Introduced in 1829.

Momordica. Balsam Pear, Balsam Apple. From *mordeo*, to bite; the seeds have the appearance of being bitten. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Cucurbitaceæ.*

A small genus of annual and perennial climbing herbaceous plants, with coarse leaves and inconspicuous flowers, either white or yellow. *M. charantia*, an East Indian species, is the Balsam Pear of our gardens. It has bright orange yellow, pear-shaped fruit, from four to six inches long, and covered all over with little wart-like protuberances. When ripe the fruit splits open and turns back, and its bright red seeds give it a showy appearance. *M. balsamina*, Balsam Apple, is in all respects the same, excepting that the fruit is smaller and nearly round. They grow best in a light rich soil, with a sunny aspect, and should be trained over a trellis or on brush. Seed should be sown early in spring.

Monarda. Horse Mint. Named after *M. Monardez*, a physician of Seville. *Linn. Diandria-Monogynia.* Nat. Ord. *Lamiaceæ.*

A genus of hardy herbaceous perennials, common from Pennsylvania to Wisconsin. They are mostly coarse-growing, and of but little beauty. *M. didyma*, Oswego Tea, has bright red, showy flowers, and is sometimes cultivated under the name of *Bee Balm.*

Moneywort. See *Lysimachia.*

Monkey Flower. See *Mimulus.*

Monkey Puzzler. See *Araucaria imbricata.*

Monk's Hood. See *Aconitum.*

Monochœtum. A synonym of *Heterocentron*, which see.

Monogramma. From *monos*, one, and *gramma*, a writing; referring to the spore or seed-cases. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of very small Ferns from the West Indies, requiring a warm green-house.

Monolopia. From *monolopus*, a single covering; referring to the flower covering. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

California woolly annuals, allied to Chrysanthemum. There are but two species: one, *M. major*, with yellow flowers, is rather showy; the other is a mere weed.

Monopsis. From *monos*, one, and *opsis*, a face; the flowers are regular, not bilabiate. *Linn. Pentandria-Monogynia.* Nat. Ord. *Lobeliaceæ.*

This little annual deserves far more attention than it has hitherto received. It bears a resemblance to the well-known *Lobelia gracilis*, except that its flowers are round, the segments being equal instead of bilabiate, as in Lobelia. The Monopsis requires the treatment usual for the other plant mentioned, and in the same situations has a much better effect, its flowers being of the same color, but from their form are more showy. It is from the Cape of Good Hope, and at present is seldom seen. Introduced in 1812.

Monotropa. The generic name of the *Indian Pipe* or *Corpse Plant.*

Monsonia. Named after *Lady Ann Monson. Linn. Monadelphia-Dodecandria.* Nat. Ord. *Geraniaceæ.*

A genus of very beautiful herbaceous plants, nearly allied to the Geraniums, but with much larger flowers. They are now rarely seen, but well deserve cultivation. They are propagated by cuttings or dividing the roots. They are natives of the Cape of Good Hope. First noticed in 1774.

MOR

Monstera. Name not explained. *Linn. Heptandria-Monogynia.* Nat. Ord. *Orontaceæ.*

A genus of climbing stove epiphytes, formerly known as *Dracontium.* Several of the species are cultivated in collections of plants with ornamental foliage. *M. deliciosa*, a Mexican species, has a succulent fruit, with a luscious pine-apple flavor. It is better known among us as *Philodendron pertusum.* Most of the species have holes in their leaves at irregular intervals, the natural causes of which are not at all understood. Propagated by cuttings and seeds.

Montbrettia. In honor of *M. Montbret. Linn. Monodelphia-Triandria.* Nat. Ord. *Iridaceæ.*

A small genus of bulbs with yellow flowers, from the Cape of Good Hope. They have the general appearance and habit of the Ixia. Unless protected by a frame during winter they must be kept in the green-house. Propagated by offsets. Introduced in 1825.

Moonseed. See *Menispermum.*

Moon-Flower. A popular name of *Ipomœa Bonanox.*

Moonwort. See *Botrychium* and *Lunaria.*

Moose Horn Fern. See *Platycerium Æthiopica.*

Moose-wood. See *Dirca.*

Moræa. Named after *R. Moore*, an English botanist. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

Bulbous plants with very handsome flowers, nearly allied to Ixia, from which genus they have been removed. They are generally grown in pots. When they have done flowering, they should be kept dry till they begin to grow in spring. When planted in the open ground they should be protected from frost and heavy rains. Natives of the Cape of Good Hope. Propagated by offsets. Introduced in 1758.

Morenia. In honor of *M. Moreno. Linn. Diœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A small genus of hot-house Palms from Peru, requiring the same treatment as the *Chamædorea.*

Morina. Named after *L. Morin*, a French botanist. *Linn. Diandria-Monogynia.* Nat. Ord. *Dipsacaceæ.*

A small genus of hardy herbaceous perennials. *M. longifolia*, a native of the mountains of the north of India, is a showy plant, growing two or three feet high, and flowering freely from July until October. Its habit of growth resembles the *Acanthus;* the flowers resemble those of the *Verbena*, only they are larger, and produced in whorls around the stem. The general appearance of the plant is weedy.

Moringa. Horse-radish Tree. From *moringo*, the Indian name. *Linn. Decandria-Monogynia.* Nat. Ord. *Moringaceæ.*

The three species that compose this genus are green-house evergreens from North Africa, Western Asia, and the East Indies. The root of one of the species, *M. pterygospermia*, is pungent and stimulant, and is used by the natives for Horse-radish. The fruit of this species is called Ben Nuts, from which is extracted a fluid oil called Oil of Ben, used by watchmakers.

Mormodes. From *mormo*, a goblin; referring to the strange appearance of the flowers. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

MOR

A small genus of epiphytal Orchids, with dark purple, curiously-shaped flowers, from Mexico. They are rarely met under cultivation, and when grown it is more for their singularity than their beauty.

Morna. Named after *Morna*, one of Ossian's heroines. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

This is a small genus of beautiful half-hardy annuals, with yellow and white everlasting flowers, allied to *Helichrysum.* They are from Swan River. Introduced in 1835. They should be started in a hot-bed, and planted out in May.

Morning Glory. See *Convolvulus.*

Morus. Mulberry. From *mor*, the Celtic for black; referring to the color of the fruit. *Linn. Monœcia-Tetrandria.* Nat. Ord. *Moraceæ.*

The species of the Mulberry grow from ten to forty feet high, and are more celebrated as affording leaves upon which the Silk-worm feeds than for their fruit, which is, however, of a very grateful quality. *M. rubra*, the Red Mulberry, is very common throughout the United States, and produces the best fruit of any of the species. Charles Downing raised a seedling from *M. alba multicaulis*, which is called "Everbearing," and justly so, as it ripens its fruit earlier than any of the species, and keeps in bearing later. *M. nigra*, the Black Mulberry, is the species that was formerly cultivated for its fruit, and was an object of much attention at a very early period in the western parts of Asia and Europe. The care bestowed upon it must have been solely on account of its fruit; for the knowledge of the mode of rearing silk-worms was confined to the people of central and southern Asia till the sixth century. It is mentioned in the Psalms that the wrath of the Almighty destroyed the "Mulberry trees with frost," and this must have been recorded as a remarkable instance of the Divine displeasure; for the Mulberry is universally known not to put forth its buds and leaves till the season is so far advanced that, in the ordinary course of events, all dangers from frost are past. We also read in the Bible that "David came upon the Philistines, and smote them over against the Mulberry trees." This species is found wild in the chains of the Caucasus and adjoining mountains, and also in Persia and Asia Minor. *M. alba*, the White Mulberry, is a native of China, and, with its varieties, is cultivated for food for the Silk-worm. Of all the varieties, *M. alba multicaulis* is considered the best, and is the most grown in silk-producing countries. It was this variety that created such a mania in the United States about forty years ago, when it was asserted that silk was soon to take the place of cotton, and that in all the Middle States it could be profitably produced. It is now largely grown in California for raising the Silk-worm.

Moscharia. From *moschos*, musk; a musk-smelling plant. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A half-hardy annual from Chili, interesting only for the fragrance of the plant; the flowers are white, but of little merit.

Moss Campion. One of the popular names of *Silene*, which see.

Moss Pink. See *Phlox subulata.*

Mother of Thousands. See *Cymbalaria.*

Motherwort. *Leonurus*, an utterly worthless weed, common in neglected and waste places.

Mountain Ash. See *Pyrus aucuparia.*

Mountain Cowslip. See *Primula.*

MUS

Mountain Fringe. See *Adlumia.*

Mountain Mahoe. See *Paritium.*

Mouse-ear Chickweed. See *Cerastium.*

Mucuna. Cow Itch. The Brazilian name. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

The plants of this genus are well known to travelers in tropical countries from the exceedingly annoying character of their seed-pods, which are thickly covered with stinging hairs, easily detached by the slightest shake, and causing great irritation if they happen to fall upon exposed parts of the body.

Mukia. Derivation unknown. *Linn. Monœcia-Decagynia.* Nat. Ord. *Cucurbitaceæ.*

A small genus of *Cucurbitaceæ*, nearly allied to *Bryonia.* They are confined to the tropics of the old world. *M. scabrella* is widely diffused. It is an annual scabrous climbing herb, with entire or lobed leaves, small yellow flowers, and greenish fruit, half an inch in diameter, which is yellow or reddish when ripe.

Mulberry. See *Morus.*

Mullein. See *Verbascum.*

Murraya. Named after *Professor Murray*, editor of *Linnæus's* works. *Linn. Decandria-Monogynia.* Nat. Ord. *Aurantiaceæ.*

A small genus of hot-house evergreen trees from India, Java, and China, producing showy white flowers, which are very fragrant.

Murucuya. The name of the species in Brazil. *Linn. Monadelphia-Pentandria.* Nat. Ord. *Passifloraceæ.*

A small genus of green-house climbers, with showy scarlet or purple flowers. The genus was formerly included in *Passiflora*, and should in all respects be treated the same. Natives of Brazil.

Musa. Plantain Tree, Banana Tree. Altered from *mauz*, the Egyptian name, in honor of Antonius Musa. *Linn. Pentandria-Monogynia.* Nat. Ord. *Musaceæ.*

The representative species of this interesting and useful genus are *M. paradisiaca*, the Plantain, and *M. sapientum*, the Banana. The latter has its stems marked with purple spots, and its fruits are shorter and rounder than those of the Plantain, and are red and yellow in color, but otherwise the two plants are little different one from the other. The fruit of the Plantain is smaller and angular, and yellow in color. "They have been cultivated from the most remote times in tropical climates, in sub-tropical Asia, America, Africa, and the islands of the Atlantic and Pacific Oceans, for the sake of their fruits, which they produce in enormous quantities, with very little attention. There are several varieties, the fruits of which differ in color and taste. The starch in the unripe fruit becomes converted, as it ripens, into mucilage and sugar. They are highly nutritious, and serve as the staple food of a large number of the human race. Though less nutritious than wheat or potatoes, yet the space occupied by their culture and the care required are so very much less, that Humboldt has calculated the produce of Bananas compared to that of Wheat as 133 to 1, and to that of Potatoes as 44 to 1. Plantain meal is obtained by powdering the dried fruit. It is very nutritious, as it contains not only starch, but proteine or flesh-forming material. The fruits of the Plantain are stated by chemists to be most nearly allied in composition and nutritive qualities to the Potato, and the Plantain meal to Rice. The natives in many parts of India live almost entirely on Plantains, and the stems, laden with fruit, are

made use of at wedding festivities, in token of plenty." The Banana is not known in an uncultivated state. The wildest tribes in South America, who depend upon this fruit for subsistence, propagate the plant by suckers. Eight or nine months after the sucker has been planted, the Banana begins to form its clusters, and the fruit is ready for picking in two or three months thereafter. When the stalk is cut, the fruit of which has ripened, a sprout is put forth, which again bears fruit in three months. The whole labor of cultivation that is required for a plantation of Bananas, is to cut the stalks laden with ripe fruit, and to give the plants a slight nourishment once or twice a year by digging round the roots. The yield per acre, with the little or no care bestowed, is between fifty and sixty tons of ripe fruit. The Banana is often cultivated in the green-house. *M. Cavendishii* is the best for this purpose; it is a dwarf species, from China, rarely growing more than six feet high, and is exceedingly ornamental. In a warm house it ripens its fruit to perfection, and the flavor is far superior to that which is found in our markets, which is picked quite green, and ripened in holds of vessels or in fruit stores. *M. Abyssinica* has foliage of magnificent proportions, and is sometimes grown on the lawn as an ornamental plant. It is of recent introduction.

Muscari. Grape Hyacinth. From *moschos*, musk; the smell of the flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of bulbous plants, with small white or blue globular flowers, in racemes, at the end of a simple stalk. They only require planting where they can remain for many years without transplanting. They are natives of middle Europe and the Mediterranean region. They have become naturalized in many parts of the United States. On the east end of Long Island some fields are literally blue with the flowers in early spring. From their peculiar fragrance, the plant is often called "Baby's Breath."

Mushroom. *Agaricus campestris.* See *Agaricus.* The great interest now being taken in Mushroom culture in the United States has induced us to treat the subject as fully as the limits of our space will permit. Mushrooms may be grown either in a house specially erected for the purpose, in cellars, out-houses, sheds, under green-house stages, tables, or, as in France and other parts of the world, in caves or other subterraneous places, as light is not necessary to their growth. There is a peculiar interest in Mushroom culture to the amateur or beginner, from the fact that, while in all other cultivated plants we have something tangible to start with—either plants, seeds, or roots—we have neither here, as far as the naked eye can see; for the white mouldy substance called *spawn* is not easily imagined to be either, though we know, by the use of the microscope, that the germs or spores are to be found in countless numbers on the "gills" of the fully-developed Mushroom, and these, without doubt, when falling in a congenial "soil," form the *spawn* which we plant to develop the Mushroom. But an extended botanical or physiological inquiry is not necessary to the subject of culture. As there is no necessity for light in Mushroom culture, the usual method of growing them, where there is a green-house, is to use the sheds used for potting, packing, or for covering the boiler pits; and the

portion of them used for Mushroom growing is generally four feet from the back wall, starting on the floor of the shed with the first bed, the additional beds being formed of shelving of the same width, and from twelve to fifteen inches deep, raised one above another to the top of the wall, like steamboat sleeping-berths. Of course, if the shed is used for growing Mushrooms exclusively, these beds will be formed in the middle and front of the shed, leaving say three feet walks between each tier of Mushroom beds; for example, if the shed is eleven feet wide, it will give two Mushroom beds four feet wide on each side, with a three feet walk in the center; or if twenty-two feet wide, the beds for Mushrooms should be four feet wide at front and rear, with an eight feet bed in the center, and three feet walks all around, the eight feet bed being accessible from the walks on either side. When a Mushroom bed is made under the green-house bench, the bench must be made of slate or other material, to prevent the water getting through, otherwise Mushrooms could not well be raised under it. The bed must also be formed under such benches as have no pipe or flues under them, as the heat from such near to the bed would be hurtful. Where there is a superfluity of cellar-room, there is no better place to raise Mushrooms, as the cool moisture of the atmosphere and the uniform temperature of the cellar is more congenial to the growth of this vegetable than structures above ground. The beds may be formed of the size and depth above recommended; or, where portable Mushroom beds are wanted, boxes may be used of the requisite depth and of convenient size. The temperature of the apartment where Mushrooms are to be grown during the winter months should range from 55° to 65°, and, consequently, it would be useless to attempt to grow the crop in the winter months unless artificial means were used to keep the temperature to that height; for though the manure in the beds were up to 80° when first made, it would only partially raise the temperature of an unheated building in winter. Probably the best time to begin making the beds for a crop wanted in winter is during August and September, as at that season the temperature is high enough to cause the spawn to germinate freely, so that the first beds made in August will give the first crop during December; those in September, in January or February; and so on. The following plan, given in our work, "Gardening for Profit," has been extensively practiced for the past fifteen years, with rare instances of failure, even by those who never before attempted the culture of the Mushroom: "Let fresh horse droppings be procured from the stables each day, in quantity not less, perhaps, than a good barrowful. To every barrowload of droppings add about the same *weight* (which will be a little less than one-third in bulk) of fresh loam from a pasture, or sod land of any kind, in fact, that has not been manured; the danger of old manured soil being, that it may contain spurious *fungi*. Let the droppings and soil be mixed together day by day as the droppings can be procured. If they can be had all at once in quantity enough, so much the better. Let the heap be turned every day, so that it is not allowed to heat violently, until you have got enough to form the bed of the dimensions required. Be careful that you keep it under cover, so that it cannot possibly get wet. Now, from the prepared heap of droppings and soil, spread

over the bed a thin layer; pound this firmly down with a brick, and so on till it reaches a depth of eight inches. Be careful that it is not more nor less than eight inches; more will cause the mass to heat too violently, while less is hardly enough. Into this bed plunge a thermometer; in a day or two the bed will heat so that it will run up to 100° or over; and as soon as it declines to 90°, take a dibble, or sharp stick, and make holes three or four inches deep all over the bed at twelve inches each way; into each hole put a piece of spawn about the size of a hen's egg, covering up the hole again with the compost, so that it will present the same level, firm surface as before the spawn was put in. Let it remain in this condition for about ten or twelve days, by which time the spawn will have 'run' through the whole bed. Now spread evenly over the surface of the bed nearly two inches of fresh loam; firm it down moderately with the back of a spade, and cover up the bed with three or four inches of hay or straw. This completes the whole operation of 'planting the crop.' Nothing now remains to be done but to attend to the proper degrees of heat and moisture. If you can control the means of heating, so that the place can be kept uniformly at a temperature of 60°, all the better; if not, it may range from 40° to 60°. It should never get below 40°, else the bed will become cold and delay the crop until too late in the season to be profitable. Unless the air of the house has been unusually dry, the Mushrooms will appear before any water is required; but examination should be made, and if the surface of the bed appears dry, a gentle sprinkling of water, heated to about 100°, must be given. With this treatment, beginning in August, our first crop is ready for use in December; while beginning in September, the crop should be ready in January and February. The Mushrooms do not come up all at once, but from three to four weeks will be needed to get off the first crop. After this, a slight dressing of fresh soil about half an inch in depth is spread over the bed, and again beaten down with the spade; this is gently watered with tepid water when dry, and a second crop of Mushrooms (often better than the first) is gathered in March or April. To show how a simple oversight in our operations may defeat the whole work, I will state that in my first attempt at Mushroom growing I labored for two years without being able to produce a single Mushroom. In my apprentice days I had known no such word as fail in so simple a matter; but here, on my first attempt, on my own responsibility, I was met by total failure. Every authority was consulted, all the various methods tried, but with no better success. In all such cases something must be blamed, and I pronounced the spawn worthless; but this could not well be, as a friend had abundant crops growing from spawn received from the same source. Driven into a corner by this information, I made another exploration of my 'authorities,' and was fortunate to find in one of them a single sentence that at once showed where my error had been; it was to 'be careful to delay the covering with mould until ten or twelve days after the bed had been spawned.' Now, in all the different methods I had tried, I had in each invariably put in the spawn, and at once put on the two-inch covering of soil, which had the effect to shut down the steam, thereby raising the temperature in the bed to a degree that destroyed the spawn, and consequently defeated my whole operations. My excuse for this digression is to show the importance of what might otherwise be thought unnecessary details. Although spawn is procurable at cheap rates in all horticultural stores, yet to such as desire to make it themselves, I give the following brief directions: Take equal portions of horse droppings, cow dung, and fresh loam, and mix the whole thoroughly together, as you would make mortar; then form it into cakes about the size of large bricks; place these on edge, under cover, until they become half dry; then insert into each a piece of spawn half an inch or so square, and let the bricks remain until they are quite dry; then spread about eight inches of horse dung over the floor of the shed, on which build the bricks in a pile three feet wide by three feet high, keeping the side in which the spawn has been put uppermost; then cover them over with sufficient stable manure, so as to give a gentle heat, not exceeding 100°, through the whole. In two or three weeks the spawn will have spread itself through the whole mass of each brick: they are then removed to a dry place, and will retain their vital properties for many years. There is not the least question that the cultivation of Mushrooms for market, forced in the manner detailed, will give a larger profit for the labor and capital invested than that from any other vegetable. The supply has never yet been half enough, and sellers have had prices pretty much as they pleased. I know of no house that has been especially erected for the purpose, and the markets have been supplied from beds formed in out-of-the-way corners, giving only an uncertain and irregular supply, very discouraging to buyers. I have no doubt whatever that Mushroom houses, roughly built, but exclusively devoted to that purpose, would, in the vicinity of any of our large cities, pay a profit of fifty per cent. per annum on the cost of construction." The following method, written by S. Henshaw, of New Brighton, Staten Island, we can, with great confidence, recommend, as Mr. Henshaw has long been known as the most successful Mushroom grower in the vicinity of New York. His plan, which we believe is entirely novel with him, of covering the beds with green sods, is of great importance, and we believe this is the first time this natural and common sense method has been given to the public. Mr. Henshaw writes as follows: "Mushrooms are rapidly becoming a favorite article of food, and, so far as I know, the demand for them in winter has never been supplied, that is, in a fresh state; of course they can always be had canned, but these are a very poor substitute when one has become accustomed to eat them fresh. Physicians tell us they are the nearest approach to animal food of any vegetable, being rich in phosphates and ammonia, and, as brain food, superior to fish. Formerly, any out-of-the-way place was thought good enough to grow them in, and in the seedsman's catalogues instructions were given for growing them, often only copied from European catalogues, recommending the use of cold sheds, barns, etc., for use in winter. This method is all good enough in a milder climate than ours; but around New York, in winter, it could only result in failure. We have grown them in all sorts of places, and, from experience, find that all the labor is thrown away, for winter forcing, if the temperature is anywhere below 50°. Until lately my only place

was a cellar under a green-house, but in building houses for Ferns and Orchids, provision was made to cover in and put a hot water pipe through a shed, on the ground floor, about fifty feet long by eight feet wide, without any shelves; this, so far, answers the purpose admirably. At other places there is a growing interest manifested in their culture. I do not find it necessary to exclude all the light, but only the rays of the sun. In this house there are three sashes, five feet long by two feet wide, put on the wooden roof at equal distances apart, which give light enough for working at all times. There are not often more than two kinds sold around New York; these are the *Agaricus campestris* and the small white *Champignon*, the latter being a favorite with the French people; but at some of the fashionable restaurants several kinds are cooked, and served to customers as a great delicacy. The common "Puff Ball" that comes up all over the country in autumn is excellent eating, when taken in its young state, sliced, and fried like the Egg Plant, or broiled like the ordinary Mushroom. The Spaniards eat several kinds that we have always thought to be poisonous, and the Russians cook a still greater number of Fungi; but no doubt the high seasoning somewhat neutralizes their poisonous qualities, and makes them safe to eat under their mode of preparing them for the table. Every year we hear of some cases of poisoning by eating Toadstools, gathered by mistake for Mushrooms; so it is best not to risk eating any that are not known to be genuine Mushrooms. In my own practice I do not find it necessary to have fresh droppings from the stable, as is so often recommended by some growers. When we get in our supply of horse manure in the autumn, about the last of October, or the beginning of November, I take care to have the finest portion of it carted to an open shed, where there is sufficient room to pile it in a loose heap, so as to be turned as often as the heat becomes violent. This will not be so often as once a day; but care is taken that it does not burn. If it is fresh horse manure, it will take nearly a month before it is sufficiently fermented to get rid of the offensive smell, and prevent the danger of burning when it is made into a compact bed. I am not at all particular to shake out all the litter and straws, as I find the spawn runs much better and quicker than when made of nothing but droppings. I never mix any soil with the manure, either when turning it over to ferment or in making the beds. Of course it takes a little longer to prepare it than it would if soil were mixed with it, but the after results are much more satisfactory, the crops are better, and for a longer period, than I have seen where soil was mixed with the beds. In making the beds I have a layer of manure spread about four inches thick, which is all trodden down as firm as possible; and then another layer of the same thickness, with another treading, or beating, and so on, till the bed is from twelve to fifteen inches deep. I then put in trial sticks, which are pointed sticks about eighteen inches long, driven into the bed about four feet apart; and these are examined occasionally in order to know when the bed is of the right temperature for putting in the spawn. If the bed does not begin to ferment within a week from the time of making, it is covered with hay or leaves; but this is not often necessary, for, as a rule, the heat is very violent, and if there is any danger

of burning, that is, if it becomes white, or 'fire-fanged,' I make a few holes in the bed to let out the steam. Usually, however, in about ten days the bed will be cool enough to spawn, or about blood heat, (98°.) In spawning the bed, I prefer what is called flake spawn, which is produced by breaking up the brick spawn into pieces about two inches square, and mixing them in a heap of manure that is fermenting gently. After laying in this heap about three weeks it will be found one mass of spawn, and just in the right condition for running vigorously all through the bed in a very short time. The quality of the spawn may be very easily detected by the Mushroom-like smell; there is nothing else smells like it, and after having once become acquainted with its peculiar odor, when in a state of activity, it is never forgotten, and I should have no hesitation in picking out good spawn in the dark. When spawning the bed I lift up the droppings in the bed about four inches deep, and put in a handful of the flake spawn about one foot apart all over the bed. After this I beat it all down as hard as possible. If brick spawn is used, I make holes about four inches deep, and nine inches apart, and put in pieces about the size of an egg, beating all well down as before. When the spawn used is in a state of activity, as it is when flake spawn is used, the appearance of the crop is from two to three weeks earlier than when brick spawn is used. If the material of the bed has been properly prepared, there is not much danger of overheating after this time; but it is best to be on the safe side, and defer putting soil on the bed until after the spawn has begun to spread, which may be known by lifting up a portion, and examining it. If it has begun to run, the manure will be found full of very fine white threads, and it will have that peculiar Mushroom-like smell spoken of above. Now comes, in my opinion, a very important part of the preparation for a crop of Mushrooms, and that is covering the bed with soil. Formerly I was very particular to have the soil finely sifted, and spread evenly over the bed about one inch deep. In a great measure this plan defeats the object of making the bed firm, and when the Mushrooms appear, if the surface of the bed once gets dry, all the small ones wither, or, as the old gardeners say, 'fog off.' Of late years I have practiced what has proved to be a much more reliable way of covering the bed, which consists in putting on fresh grass sods cut about two inches thick; these are laid all over the bed, grass side down, and trodden or beaten down as firmly as possible. With this covering, I have never known the small Mushrooms to wither before coming to maturity. Another advantage over the old plan is, the bed continues bearing longer, the Mushrooms are larger, and come through the sods in a healthy, vigorous way that is pleasant to look upon. In gathering the crop from a bed covered with sods, the largest can be twisted from a cluster without disturbing the small ones, which was often a great loss by the old plan. After the bed begins to bear I never use any covering, such as hay, or similar material, for, if the place is not absolutely dark, the small blades of grass grow through the sods, and form a sort of mulch, and the Mushrooms, as they peep through the grass, appear much more natural and cleanly than when covered with rubbish; besides, in many cases the covering is

only a harboring place for vermin, such as slugs, wood-lice, etc., which are all great enemies to the crop, and will devour both the Mushrooms and the spawn, if they can get at it. Some growers put covering on their beds to keep the surface moist; but this can be effectually done by sprinkling the sides of the house, the surface of the beds, and paths, if there are any; but I do not have any paths in the Mushroom house. The beds are made to cover all the floor, and there are no beds on shelves, as was formerly the case; the work, in the former case, is so much more easily done; the beds can be made firmer; and if any enemies make their appearance, it is much easier to get rid of them when all the surface can be seen at once. In watering the beds I use warm water; that is, water about 95°. It is used either for watering the beds or for sprinkling. The vapor arising from warm water is very congenial to the growth of the Mushroom. At night I frequently pour water on the hot-water pipes in order to imitate a fog in autumn. When a bed is in bearing the surface is never allowed to get dry; and when the bed shows signs of exhaustion I give a dose of liquid manure, previously warmed, about once a week. The drainage from the manure heap is found to be the best; but if that cannot be had, a weak solution of guano will do, say one pound to twenty-five gallons of water. Sometimes, if an old bed has almost ceased to bear, I have started it afresh by making holes in the surface, and pouring in a very liberal quantity of liquid manure, which, with another sod on top, will almost make a new bed of it. It sometimes happens, after all the trouble of preparing the material, making, and spawning the bed, etc., that a spurious fungi will take possession of the bed, and bear a wonderful crop of toadstools in about three weeks after the bed is made; and as a natural consequence the seedsman who sold the spawn is blamed, and the victim feels very much as if he had been swindled out of his money, time, and trouble. I have had the same disappointment when the beds have been spawned with bricks of my own make, which have produced excellent crops when used in other beds, so that I know it could not have been the fault of the spawn. I have always found, however, that if the spores of other fungi than the edible Mushroom are in the manure or the soil, it is always first to produce a crop; so I am never in a hurry to disturb a bed if covered with toadstools, for their crop is of short duration, seldom lasting more than a week, and after that the real Mushroom frequently makes its appearance, apparently none the worse for the previous intrusion. If, however, after waiting a reasonable time for some sign of a crop, and none appears, and there is no evidence of the spawn being in an active state, it is best to take out the material, and start afresh. The manure, sods, etc., make an excellent compost for potting, if exposed to the weather for a short time to destroy any of the spores that might be in it. There is that much time, of course, lost; but Mushrooms are sometimes very capricious as to their choice of locality, and with the best of attention often refuse to grow satisfactorily; at other times, with the least attention they sometimes produce the best crops. I do not attempt to grow them after the end of May, for after that time the temperature gets warm enough to develop the small fly that lays its eggs in the stem of the Mushroom, and

in an incredibly short time these are hatched, and burrow through the whole Mushroom, which renders it unfit for the table. I do not suppose they would do any harm if eaten in that state, but people prefer their animal and vegetable food kept separate. As before stated, I have no path in the Mushroom house. The beds are made only on the floor, which is nothing but earth, and I prefer that to either bricks or wood, provided it is drained, so that no water can lodge in any part. This plan makes it necessary to walk on the beds to gather the crop, as well as to water and syringe the walls, pipes, etc., but I never saw any harm done by it; and frequently, where the surface is trodden down the hardest, there the best clusters push their way through. There is a door at each end for removing the old beds and bringing in fresh material, so that all this can be done without disturbing the beds that are at work. Often, in removing an old bed, I find some of the best spawn at the bottom, and if I have not got a good supply, this is packed in barrels, alternately with a little fresh manure, the whole pressed down tight, and put in a cellar or some dry place until wanted; but neither this nor the flake spawn will keep as long as that made into bricks. In regard to temperature, I have had the best success when it has been kept from 60° to 65°. If it is kept higher the Mushrooms come much smaller, and the beds are sooner exhausted; and if kept lower than 50° the Mushrooms are very slow to grow, and are not tender in cooking. Mushrooms can be propagated by taking the overgrown clusters, drying them, and, when wanted, burying them in a small heap of gently fermenting manure, the same as recommended for flake spawn. Some years ago a cluster of Mushrooms came up in one of the beds, which were quite different from the rest of the crop, being larger, heavier, and irregular in shape, and of higher flavor. Wishing to perpetuate this variety, I allowed them to develop, and before the spores began to fall from the gills, spread some thin white paper underneath, which was soon covered with spores, and looked as if covered with soot. When the clusters had withered I took the paper, old Mushrooms, etc., and covered them with warm manure; in a few weeks I had a quantity of good spawn of the same variety, which can be used to spawn beds in future. This new variety of Mushroom, which might be called *A. campestris triangularis*, is three-angled, somewhat resembling the old Continental military hat. It is found to be much finer flavored than the common Mushroom, and is in every respect worthy of general cultivation. There has none of it thus far been put in the market."

Musk-Flower. See *Mimulus moschatus.*

Musk Mallow. See *Malva.*

Muskmelon. *Cucumis melo.* See *Cucumis.*

The cultivation of the Muskmelon was carried on at a very remote period. It is said to be a native of the central part of Asia, and to have been brought into Europe from Persia; but the date of its first culture is so remote that there is no certain knowledge on the subject. It appears to have been brought into Italy early in the first century, if not before, as it is mentioned by Pliny, who died from suffocation caused by the great eruption of Vesuvius in A. D. 79. In his works he describes the methods by which Melons were grown or forced, so as to be obtained for the Emperor

Tiberius at all times of the year. Of the Melon there are many varieties. Of the various classes of Melons, one of the oldest and best is the Cantaloup, which, according to M. Jacquin, derives its name from Cantalouppi, a seat belonging to the Pope, near Rome, where this sort, brought from Armenia by the missionaries, was first cultivated. The flesh of this, with its varieties, is yellowish or pink. The Nutmeg and Citron varieties, which are the more common in our markets, are supposed to be the African or Egyptian Melons of the early writers. The Melons of Persia have long borne a high character, and differ materially from the varieties commonly cultivated. They are extremely rich and sweet, and instead of the thick rind of the common melons, they have a very thin and delicate skin, which makes a fruit of the same apparent size contain nearly twice as much edible flesh. From this peculiarity they are difficult to handle and ship; and they are likewise more difficult of culture, requiring a long, warm season to ripen to perfection. The most popular Melon of the New York markets is the "Hackensack," a green-fleshed, finely netted variety, cultivated in immense quantities in the vicinity of Hackensack, N. J.

Musquash Root. One of the popular names of *Cicuta maculata*.

Mussænda. The *Cingalese* name of one of the species. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of tropical evergreen shrubs. *M. frondosa* is a very pretty species, with terminal clusters of yellow flowers, which are surrounded by bracts of pure white, which give it a very singular appearance. The leaves of some of the species are esteemed for their medicinal properties. They are natives of the East Indies. Propagated by cuttings. Introduced in 1814.

Mustard Tree of Scripture. See *Salvadora Persica.*

Mustard. See *Sinapis.*

Mutisia. Named after *C. Mutis*, a South American botanist. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A small genus of ornamental green-house climbing plants, natives of South America, chiefly confined to the Andes of the West, and especially of Chili. The flowers are produced in terminal heads or clusters, and are mostly of a pink, purple, or yellow color. They require a warm place in the green-house. Propagated by cuttings. Introduced in 1832.

Myosotis. Forget-me-not. From *mys*, a mouse, and *otos*, an ear; resemblance of the leaves. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ.*

A genus of hardy and half-hardy annuals and perennials, comprising numerous European, Northern Asiatic, and one or two native species. The lovely blue Forget-me-not is a member of this genus, and a general favorite. The herbaceous species succeed best in moist places, but all may be grown in pots, provided they are kept well watered. They are usually grown, however, in cold frames like Pansies. A recent introduction from the Azores *(M. Azoricum)* bears large, handsome flowers. It is the only tender one of the genus. The whole are readily propagated, either by division or by seed.

Myrica. Bayberry, Wax Myrtle, Sweet Gale. From *myrio*, to flow; found on the banks of rivers. *Linn. Dioecia-Tetrandria.* Nat. Ord. *Myricaceæ.*

A genus of green-house evergreen and hardy shrubs. The former are not much grown. Of the latter, *M. cerifera* is a shrub common to New York and the Atlantic coast, growing four to eight feet high. The folinge has a pleasant fragrance, and is used to a large extent in mixing with flowers used in summer bouquets. In New England the wax which invests the berries is collected in considerable quantities. It is obtained by boiling the berries in water, when the wax melts and rises to the surface. Under the name of Bayberry Tallow it is often used to make candles, either alone or mixed with tallow; it is also employed in soap-making.

Myricaria. From *murike*, the Greek name of the Tamarisk. *Linn. Monadelphia-Octandria.* Nat. Ord. *Tamaricaceæ.*

Of the several species that are included in this genus, *M. Germanica* is the only one of special interest. It is a hardy evergreen shrub from six to eight feet high, with very narrow, flat leaves, and long spikes of delicate pink flowers. It is indigenous throughout most parts of Europe and the Caucasus. It is of easy culture, and very ornamental. Propagated by cuttings of young shoots, either in spring or autumn.

Myriophyllum. Water Milfoil. From *myrios*, a myriad, and *phyllon*, a leaf; division of the leaves. *Linn. Monœcia-Polyandria.* Nat. Ord. *Haloragaceæ.*

An extensive genus of hardy aquatic plants, allied to *Hippuris.* The several species are common in ponds and ditches throughout the United States. *M. spicatum* makes a desirable plant for the aquarium.

Myristica. Nutmeg. From *myristikos*, sweet-smelling. *Linn. Dioecia-Monadelphia.* Nat. Ord. *Myristicaceæ.*

M. moschata, a beautiful branching tree, growing about thirty feet high, produces the Mace and Nutmegs of commerce. It is principally grown in the Banda Isles, though common in Java and the Molucca Islands. The male and female flowers are on different trees. The flowers of both are small, white, bell-shaped, and without any calyx; the embryo fruit appearing at the bottom of the female flower in the form of a little reddish knob. The female flowers grow on slender peduncles, two or three together, but it is rare that more than one flower in each bunch comes to maturity and produces fruit; this resembles in size a small peach, but it is rather more pointed at both ends. The outer coat is about half an inch thick when ripe, at which time it bursts at the side and discloses the spices. These are, the *Mace*, having the appearance of a leafy net-work of a fine red color, which seems the brighter by being contrasted with the shining black of the shell that it surrounds. This is laid to dry in the shade for a short time; but if dried too much, a great part of its flavor is lost by evaporation. On the other hand, if packed too moist, it either ferments or breeds worms. The *Nutmeg* is contained in a shell somewhat harder than that of the filbert, and could not, in the state in which it is gathered, be broken without injuring the nut. On that account the nuts are successively dried in the sun, and then by fire heat, till the kernel shrinks so much as to rattle in the shell, which is then easily broken, and the nutmeg released. After this process they are several times soaked in seawater and lime, and then laid in a heap, where they heat and get rid of their superfluous moisture by evaporation. This process is pursued to

preserve the substance of the nut, as well as to destroy its vegetative power. When perfectly cured they are packed in dry slacked lime, and sent to market.

Myrospermum. From *myron*, myrrh, an aromatic balsam, and *sperma*, a seed; the seeds yield a strong-smelling resin. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

This is the genus which produces the Balsam of Tolu and the Balsam of Peru, used in perfumery and in the preparation of lozenges. They are all from South America, and mainly interesting for the drugs they furnish.

Myrsiphyllum. Smilax. From *myrsine*, a myrtle, and *phyllon*, a leaf; resemblance of the leaves. *Linn. Hexandria-Trigynia.* Nat. Ord. *Liliaceæ.*

M. asparagoides, the well-known Smilax of the florist, is a native of various parts of the Cape of Good Hope. It was first introduced into England in 1702, but was soon discarded. It was again introduced by Mr. Cooper about 1861, who sent it to Kew, where it flowered, and from whence it was disseminated. It is now one of the essentials of a florist's stock; in fact, it is of greater importance than any flower, if we except the Rose. It is of easy culture, as may be inferred from the fact that it is treated in about as many different ways as there are growers. Sow the seed in the green-house in boxes of light rich soil in January or early in February. As soon as the plants are three inches high, prick them out first into shallow boxes, and again into thumb-pots when established, and grow on in any convenient place, even partially under benches, where little else would grow. When required shift into a three-inch pot, and grow on until about the first of August, and then plant out in the bed where they are to grow, at about six inches from plant to plant, and twelve inches between the rows. This is about the right distance when strings of six or nine feet are used to train on; if higher, the strings may be set farther apart. By the first of January following it will have made a growth of eight or ten feet, and be ready for cutting. A second growth will at once commence, and a crop secured by March or April. When the second crop has been cut, give it a partial rest, clean the bed off, enrich with a light top dressing, and put up the strings for the next year's growth, which will commence in August or September. When growing freely it may be liberally supplied with manure water

once a week and syringed once a day. This treatment never fails of giving at least two good cuttings a year; and with a succession of plantings a supply can be had at all times of the year. The strings used should be of a green color, so that in festooning they may not be seen. Although a second crop is often taken after the last cutting in April, we prefer to use the space in spring for other purposes, and plant the young plants of Smilax each year, beginning the first planting in August, as above mentioned. From August to October a light shading should be used on the glass. We find nothing better than naphtha mixed with a little white lead, so as to give it the color of thin milk. This shading can be put on with a syringe in a few minutes. It costs only twenty-five cents for each thousand square feet of glass, and we consider it the best shading for all green-house operations. One important caution in growing Smilax must be given; it will not stand tobacco nor any other kind of smoke or gas, the leaves quickly getting yellow. If infested by the Aphis (Green Fly) tobacco must be used in the liquid state, by steeping the stems till of the color of strong tea. When other plants require to be fumigated in the same house with Smilax, to save the Smilax from injury, it should be first freely syringed, as the smoke will then not hurt the leaves. The same plan should be used with Heliotrope, or any other plant the leaves of which are susceptible to injury from fumigation.

Myrtle. See *Myrtus.*

Myrtus. Myrtle. From *myron*, signifying perfume. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myrtaceæ.*

A genus of beautiful evergreen shrubs, natives of Europe, Asia, South America, and some of them of New Holland. The common Myrtle, *M. communis*, of which there are eight or ten very distinct varieties, is too well known to require any description. It is not surpassed in beauty of foliage by any exotic shrub, and the flowers are of a pure white, and, like the leaves, fragrant. The fragrance arises from an oil which is secreted in little cells, which appear as dots when the leaves are held up to the light. The handsomest varieties of the common Myrtle are the Roman, or broad-leaved, the broad-leaved Dutch, the narrow-leaved, and the double-flowered. They are propagated with facility by cuttings of the young wood.

N.

Nægelia. Derivation of name unknown. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Gesneraceæ.*

This genus was formerly included with *Gesnera*, of which the type is the well-known *G. zebrina.* They are deciduous green-house plants, natives of Mexico. The leaves are oval-shaped, of a green color, and have a velvety appearance, being thickly covered with short crimson hairs, which give them a rich velvet-like hue. They have erect racemes of large, showy flowers, mostly bright scarlet. Propagated and cultivated the same as recommended for *Gesnera.*

Nagkesur. See *Mesua.*

Nandina. From *Nandin*, the Japanese name. *Linn. Hexandria-Digynia.* Nat. Ord. *Berberidaceæ.*

A genus of green-house evergreen shrubs, with terminal panicles of white flowers. It is a native of China and Japan, where it is extensively grown in gardens. It is propagated by cuttings of well-ripened wood. Introduced in 1804.

Nanodes. From *nanodes*, a pigmy. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

N. discolor, the only known species, is a curious Orchid from the West Indies and Brazil, with leaves and flowers very much alike. The plant, which is only an inch or two high, has pale

glaucous foliage and purple fringed flowers. It is exceedingly rare, but not particularly beautiful. It should be grown on a block or cork, in a cool house.

Napoleona. Named in honor of the *Emperor Napoleon. Linn. Polyandria-Monogynia.* Nat. Ord. *Myrtaceæ.*

A very singular genus of shrubs, natives of western tropical Africa, whose place in the natural system is a contested point among botanists. "Among the most remarkable plants that have hitherto been discovered ranks this rare species. It forms a bush about as large as a *Camellia;* and some idea of the structure of its flowers may be formed when we state that the species has been referred to the natural order *Passifloraceæ* by some botanists, and to *Cucurbitaceæ* by others. The propagation of this plant may be effected by cuttings, and in other respects its treatment should resemble that of *Gardenia."—Paxton.*

Narcissus. Name of a youth said to have been changed into this flower. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

In this genus we have a long list of established favorites, remarkable alike for the elegance, fragrance, and precocity of their flowers. In one respect the species are all alike: they delight in rich soil made porous with plenty of sand and well-rotted manure. All of them are also quite hardy, and from the early period at which their flowers are produced, they are of the utmost consequence to the flower gardener. Several of the species are found to bear forcing well, and for this purpose have become a staple article in the Dutch florists' trade, and several varieties have been originated by them, suited, by the selection of their parentage, to bear this trying course of treatment. Of those commonly grown for forcing, we prefer the following: *Bazelman Major, Soleil d'Or, Grande Primo,* and *Grande Monarque;* these, with the double Roman and others, should be potted in September in a mixture of equal parts of fresh loam, rotted manure, and leaf mould, with half of either quantity of sand. In potting, the neck of the bulb should be kept above the surface of the soil, that the roots may have so much more space in the pot; and when the potting is completed they should be placed together, either in a cold frame or in some convenient place, so that they may be covered a foot thick with fresh leaves. These exclude light and prevent frost from getting to the roots, both essential to a speedy excitement into growth. After about a month or six weeks it will be found that some of them are growing, and these may be taken into gentle heat to bring on their flowers; and if re-potted when the first two leaves have grown a few inches, the flowers will be considerably larger; but before any plant is taken from the bed of leaves, be sure that it has made a good stock of healthy roots, or it will be spoiled by the forcing process. Narcissi do not require a powerful heat to bring out their flowers, (55° will do it better than any other,) and the supply of water should be at once sufficient, but by no means excessive. When grown in the open borders, the bulbs should be planted in October, in newly-dug and well-manured ground, at a depth of three inches, reckoning from the top of the bulb to the surface of the soil. This will not be too much for any, except, perhaps, the Jonquils, which, from having smaller bulbs, may be placed an inch nigher to the top. At this depth, and with plenty of manure about them, water will not be required, but they will grow strong and flower finely. When planted in beds, and it becomes necessary to remove them to make room for other plants, it should be done as soon as their beauty is past. As the bulbs are by no means mature at this time, they should be "laid in" in some slightly shaded place until the foliage is quite withered, when they may be taken up, dried, and stored away until wanted for the next planting season. Most of the species are from the south of Europe, and are propagated by offsets. They were among the earliest cultivated garden flowers. The Paper Narcissus, *N. papyraceus,* is now, perhaps, more extensively forced than either of the above mentioned. It is grown in immense quantities by the florists of New York and other large cities, and, next to the Roman Hyacinth, is the bulb most extensively grown for this purpose. When grown on a large scale it is planted in boxes of soil four inches deep at a distance of three to four inches apart, and treated as recommended above. This, like nearly all other bulbs, is of no value after being forced, and the roots may be thrown away.

Nasonia. From *naso,* a nose; in allusion to the column. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

N. punctata, the only species that constitutes this genus, is a very beautiful little epiphytal Orchid. It is a native of Peru. It is a dwarf-growing plant, with small green alternate leaves. Flowers large, cinnabar-red, with center of lip yellow, produced from the axils of the leaves on a short scape.

Nasturtium. Water Cress. From *nasus,* the nose, and *tortus,* tormented; referring to the hot, acrid smell. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

This genus consists principally of dwarf, uninteresting, weedy-looking plants. *N. officinale* is the well-known Water Cress, a native of Great Britain. It has become naturalized here, and is common near springs or open, running watercourses. The name of this genus is commonly misapplied to *Tropæolum.* The culture of Water Cress is still comparatively little known in the United States, and as the subject was very fully treated in our vegetable work, "Gardening for Profit," in 1874, we here quote from that work at length, believing that little else is needed for a full understanding of its cultivation. "This is a well-known hardy perennial aquatic plant, growing abundantly along the margins of running streams, ditches, and ponds, and sold in immense quantities in our markets in spring. Where it does not grow naturally, it is easily introduced by planting along the margins of ponds or streams, where it quickly increases, both by spreading of the root and by seeding. Many a farmer, in the vicinity of New York, realizes more profit from the Water Cresses cut from the margin of a brook running through his farm, in two or three weeks in spring, than from his whole year's hard labor in growing Corn, Hay, or Potatoes. Water Cress can be best cultivated in places where the streams run through a level tract. Supposing the stream to be a foot deep on an average and six or eight feet wide, running through a meadow, a good plan for cultivation is to make excavations laterally, say in beds five feet wide, (with alleys between five feet,) to a depth of about eight inches, or deep enough to be flooded by the stream when it is of average height, or, when shallow, by damming

it up so as to flood the beds. The advantage of having the beds excavated at right angles to the stream rather than parallel with it is, that in the event of freshets the crop is less liable to be washed away. The length and number of the beds excavated must, of course, be determined by circumstances. Water Cress seeds germinate freely in earth when kept saturated; hence the beds, when properly leveled and pulverized by digging and raking, should be slightly flooded (enough to saturate the soil only when the seeds germinate;) for, of course, if the beds were filled up with water the seeds would be washed off. After the seedlings have started so as to show green, the water may be gradually let on as they develop. Probably the best time of sowing the seed would be, for the latitude of New York, about the middle of August. When Water Cress is found growing naturally, the beds can be made by setting the plants six or twelve inches apart each way. When the cultivation is once fairly begun there is no difficulty about forming new beds, as few plants grow more rapidly when proper conditions are present. If the crop is planted or the seed sown by the middle of August, it will have spread all over the beds by November. The streams being full in autumn, the beds will be fully flooded, so as to protect the plants during winter. It is always found wild growing best in clear, shallow, slowly-running water with a sandy or gravelly bottom; and as Nature is always the surest guide to successful cultivation, the nearer she can be imitated the better the success. I find it is one of the plants the culture of which is not very easy to give by writing, as so much must be determined by the circumstances of locality. Wherever a suitable stream is at command the experiment of growing Water Cress is worth trial, especially when we know that it, in many cases, pays for a given area six or eight times more than any other vegetable cultivated, provided it can be sold in the markets of New York or Philadelphia. It is usually sold in baskets containing about three quarts, which sell, when first in market, at one dollar each; and two hundred or three hundred such are carried in an ordinary wagon, so that from a single load of this simple vegetable, two hundred to three hundred dollars are realized. The Water Cress has a particularly pleasant pungent taste, agreeable to most people in early spring. It is said, that when Sir Joseph Banks first arrived in England after his voyage around the world, among the first things he asked for were Water Cresses, well knowing their value as a purifier of the blood; and that he afterward presented one of the largest Water Cress growers for the London market a Banksian Medal, for energy shown in the business, believing that, while he had benefited himself, he had benefited the community. I have no doubt whatever, that in situations where irrigation could be used at pleasure, and regular plantations made as for Cranberries, if grown in this way, (judging from the enormous price they sell at, picked up as they are in the present hap-hazard way,) at present prices, an acre would sell for four thousand or five thousand dollars."

Navarrettia. Derivation of name unknown. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

Mostly coarse hardy annuals, with blue flowers, from California. They are allied to *Ipomosis*, and should have the same treatment.

Navelwort. See *Cotyledon.*

Neapolitan Violet. See *Viola odorata pallida plena.*

Necklace Tree. See *Ormosia.*

Nectarine. *Persica lævis.* The Nectarine is almost identical with the *Peach*, and both owe their origin to one and the same parent, *Amygdalus Persica.* Most botanists consider them the same species; the only difference between the two being in the skin, the Nectarine having a smooth and the Peach a downy one. Their identity has often been confirmed by fruit of both sorts being produced not only on the same tree, but on the same stem; and instances are recorded of the same occurring in one fruit, one side of which was downy like the Peach, the other smooth like the Nectarine; and the Boston Nectarine was a seedling from a Peach stone. The French have always considered them the same, and designate them as smooth and downy Peaches. From the ravages of the insect known as the Curculio, the Nectarine is rarely grown to perfection in the open air in the United States. For their history see *Peach.*

Nectaroscordum. Honey Garlic. From *nectar*, honey, and *skorodon*, garlic; referring to honey-pores in the flower of this onion-like plant. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

This genus of bulbs is allied to the *Allium*, and was formerly called *Allium siculum.* It is a very curious, hardy bulb, throwing up a flower scape three to four feet high, quite slender, with a cluster of long, pendulous, green or purplish flowers. It grows freely in a light soil, and flowers in June. Introduced from Sicily in 1832. It is increased by offsets.

Negundo. Box Elder, Ash-leaved Maple. Derivation of name unknown. *Linn. Dioecia-Pentandria.* Nat. Ord. *Aceraceæ.*

A genus of hardy native deciduous trees, allied to the Maple. *N. fraxinifolium* is common in Pennsylvania, and South and West. *N. folia variegata*, a variety, is one of the handsomest variegated trees under cultivation in England, but is rarely seen in the dry climate of the United States in perfection, though a native. The leaves are beautifully marked white and green, and it is a plant of rapid and vigorous growth. There are several variations, but none so good as the above. They are all natives of the United States.

Nelumbium. Nelumbo, Sacred Bean. From *nelumbo*, the Cingalese name of *N. speciosum. Linn. Polyandria-Polygynia.* Nat. Ord. *Nelumbiaceæ.*

This genus contains several beautiful species, which are aquatic plants, growing in ponds and slow-running streams. *N. speciosum* is the Sacred Bean or Sacred Lotus of India. It is a native of both the East and West Indies, China, Japan, Persia, and Asiatic Russia. According to Thunberg, it is esteemed a sacred plant in Japan, and pleasing to their deities, the images of their idols being often represented as sitting on its large leaves. The worship of the Lotus was common with the ancient Egyptians; it is not now, however, to be met with on the Nile. Herodotus described the plant with tolerable accuracy, comparing the receptacle of the flower to a wasp's nest. Sculptured representations of it abound among the ruins of Egyptian temples, and many other circumstances prove the veneration paid to this plant by the votaries of Isis. The Chinese have several varieties, the more beautiful being the rose-colored flowering one. They

have always held it in sacred regard. That character has not, however, limited it to merely ornamental purposes, for the roots are not only served up in summer with ice, but they are also laid up with salt and vinegar for the winter. The leaves are covered with a fine microscopic down, which, by retaining a film of air over the upper surface, prevents it from being wetted when water is poured on it, the water rolling off in drops; this has a very pretty appearance, the drops of water looking like drops of molten silver. The Hindoos have a proverb founded on this peculiarity of the leaves, to the effect that the good and virtuous man is not enslaved by passion nor polluted by vice; for though he may be immersed in the waters of temptation, yet, like a lotus leaf, he will rise uninjured by them. *N. luteum* (*Yellow Nelumbo* or *Water Chinquapin*) is a very beautiful species, with yellow flowers from six to ten inches in diameter, common in the Western and Southern States. It has been introduced into the Delaware near Philadelphia, and also in some parts of New Jersey and Connecticut. It may be grown in a large tub, or in a tank, in the same manner in which the white Pond Lily is often grown.

Nelumbo. See *Nelumbium*.

Nematanthus. From *nema*, a thread, and *anthos*, a flower; in allusion to the pendant, thread-like peduncles on which the flowers are suspended. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ*.

A genus of green-house evergreen trailing plants, with large scarlet flowers, singly, in the axils of the leaves. It requires a warm, humid atmosphere, in which it is a rapid grower. It is a native of Brazil. Introduced in 1841.

Nemesia. Name of a plant in Dioscorides. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ*.

A small genus of low-growing annuals from the Cape of Good Hope. They have opposite or whorled leaves, and terminal racemes of white and purplish tinted flowers. They are of but little interest.

Nemophila. From *nemos*, a grove, and *phileo*, to love; the plants delight in a shady situation. *Linn. Petandria-Monogynia.* Nat. Ord. *Hydrophyllaceæ*.

A small genus of very beautiful hardy annuals from California. *N. insignis* is a beautiful border plant, with lovely blue flowers. It should be grown in a moist, partly shaded situation. The seed should be sown very early in spring. The Nemophilas make fine pot plants for flowering in the green-house in winter; and for this purpose the seed should be sown early in the fall, and the plants kept rather cool in winter.

Neottia. From *neottia*, a bird's-nest; referring to the interlacing of the numerous roots. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

A genus of hardy and green-house terrestrial Orchids, of but little interest and rarely cultivated.

Neottopteris. From *neottia*, a bird's nest, and *pteris*, a fern; founded on the Bird's Nest or Spleenwort Fern. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ*.

A genus of rather interesting Ferns, from New Zealand and the East Indies, rarely seen under cultivation.

Nepenthes. Pitcher Plant. From *nepenthes*, grief-assuaging; its supposed medicinal quality. *Linn. Dioecia-Monadelphia.* Nat. Ord. *Nepenthaceæ*.

Among the many curious forms which abound in the vegetable kingdom, perhaps few arrest more general attention than do the members of this genus. The extraordinary appendage to the apex of each leaf has obtained for it the appropriate appellation of the Pitcher Plant. Connected with the point of the leaf, by means of a long, pendant, strap-like ligament, hangs a hollow tube, sometimes of the color and consistence of the leaf, shaped much in the manner of some antique vase, which will hold from half a pint to near a quart of water, and extending over the mouth of which is what may be readily likened to a lid, the whole hanging loosely by the strap before mentioned, and appear only as though provided by a beneficent Providence to catch and preserve the dews of heaven for the supply of the animal population of the sultry clime from which it is obtained. In cultivation, the species require very similar treatment to what is usual for East Indian Orchids. They are of an upright, slender habit, requiring some support to their flexile branches; and for this purpose light iron rods should be fixed to the pot or basket in which they are grown, and circular hoops afford the easiest means of fastening the leaves and pitchers in their respective places. Leaf mould, with an equal quantity of decaying Sphagnum moss, appears the most proper medium for their roots, and with a damp atmosphere of about 80° in summer they grow vigorously. The necessary reduction of heat and moisture in winter must be observed with these as with all other plants. The most common of the species is *N. distillatoria*, but a recent introduction (*N. ampullacea*) is one of the finest, its pitchers being nearly twice the size of those of the first named. *N. Loddigesii* is also a new and very fine species. *N. Rafflesiana*, of late introduction, is another very curious and handsome species. Like many others, it has two kinds of pitchers, those on the lower leaves being bladder-shaped, with two fringed wings in front, about four inches long by two wide, and beautifully spotted with rich brown; while those on the upper leaves are less beautifully colored, a good deal longer, and funnel-shaped, narrowing gradually to the base, where they gracefully curve upward. Quite a number of remarkably beautiful hybrids have been introduced within a few years from seeds. The genus is distributed throughout Borneo, Sumatra, and the adjacent islands of the Indian Archipelago. Increase is had by separating the offsets produced near the base of the stems of the old plants; these should be taken off and potted at once, in the manner of mature specimens, and if allowed the warmest part of the house, or a brisk bottom heat, soon establish themselves. To believers in the Darwinian theory of insect-eating plants, the Pitcher Plants offer a good argument. In nearly all the varieties a fluid is found at the bottom of the "pitchers" that seems to attract, and at the same time poison, ants that flock to it in immense numbers, sometimes a thousand being found in a single "pitcher." Mr. William Smith, Superintendent of the Botanic Gardens, Washington, D. C., holds to the belief that the fluid intoxicates the insects. First introduced in 1820.

Nepeta. Catnip, Cat Mint. From *Nepet*, a town in Tuscany. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ*.

An extensive genus of hardy herbaceous plants, properly classed with troublesome

weeds. *N. cataria*, the well-known Catnip, which is regarded as a useful herb, and *N. glechoma*, (Ground Ivy,) have become naturalized throughout most of the States, until they have become more troublesome than useful. The former is now being grown in rough waste places for Bee-food, for which it is said to be valuable.

Nephelium. An ancient name for Burdock; applied in reference to the similarity of the heads of the flowers and seeds. *Linn. Octandria-Monogynia.* Nat. Ord. *Sapindaceæ.*

A small genus of fruit-bearing trees from China and the East Indies. The best variety has fruit nearly round, about one inch and a half in diameter, with a thin, brittle shell of a red color, which is quite warty. When fresh, they are filled with a white, almost transparent, sweet, jelly-like pulp; after they have been gathered some time, the fruit shrivels and turns black, and then bears some resemblance to Prunes. The Chinese are very fond of these fruits, and consume large quantities of them, both green and in the dried state, preserved.

Nephrolepis. From *nephros*, a kidney, and *lepis*, a scale; referring to the covering of the seed or spore-cases. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A considerable genus of very handsome tropical Ferns. *N. tuberosa* is by far the finest of the family, and the one best adapted for the ordinary green-house. It has no equal for the sitting room or conservatory, being a rapid grower, of graceful habit, and not liable to be injured by sudden changes of temperature. It is rapidly increased by division or by spores.

Nerine. Guernsey Lily. Named after *Nerine*, daughter of Nerius. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

Showy bulbous plants, the type of which is the Guernsey Lily, and which are natives of the Cape of Good Hope, China, and Japan. The Guernsey Lily is a native of Japan, and the reason why it has obtained its English name is said to be, that a ship laden with these bulbs and other plants from China was wrecked on the coast of Guernsey; and that the bulbs being washed on shore, took root in the sandy soil of the beach, and flourished there so remarkably as to be supposed to be natives of the island. Whether this story be true or not, it is quite certain that for nearly two hundred years these bulbs have been cultivated in Guernsey with the greatest success, growing freely in the open air, and producing abundance of offsets every year, from which the market is supplied. The bulbs are generally planted in spring, in pots of very sandy loam, and placed in some window or other situation where they will have plenty of light. They flower in September and October; and as soon as they have flowered the bulbs are generally thrown away, as they are said never to flower well the second year. This is, however, entirely the fault of the grower, as, if they were planted in a well-drained, sunny border in the open ground, and allowed to mature their new bulbs every year by the agency of the leaves, there is no doubt that they would live as long as any of the kinds of Narcissi, and flower as freely. The true Guernsey Lily is *N. sarniensis.*

Nerium. Oleander. From *neros*, moist; referring to their native places of growth. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

Nerium oleander and its varieties are old and

valued inhabitants of our green-houses; their large and handsome flowers, either double or single, pink or white, produced in the early part of the vernal season, have made them general favorites, and a late addition promises to give an additional impetus to their culture; this is a striped variety, with marks exactly like those of the Carnation. It is of French origin, and is called *N. tanglé.* Undoubtedly it is a variety of *N. oleander*, and requires just the same kind of treatment, viz., to be grown in leaf mould and loam, well watered, and kept rather warm while growing, and to be moderately rested in winter. The Oleander may be kept in a cool cellar during the winter, and grown out of doors in the summer, where it will flower freely. Notwithstanding the beauty of the Oleander, it is one of the most virulent of vegetable poisons. It is common in the south of Europe. Propagated by cuttings of well-ripened wood.

Nertera. A genus of *Cinchonaceæ. N. depressa*, the only known species, a native of the southern part of South America, is a creeping herbaceous plant, with oval, fleshy leaves that are densely matted, flowers very small and white. The plant is conspicuous for its orange scarlet berries, that contrast strongly with its bright green foliage. Propagated by cuttings, seeds, or division.

Nettle. See *Urtica.*

Nettle Tree. See *Celtis.*

New Jersey Tea. See *Ceanothus.*

New Jersey Tea. See *Lycium.*

New Zealand Flax. See *Phormium.*

New Zealand Spinach. *Tetragonia expansa.* This is grown as a substitute for summer Spinach, being of a delicate flavor, and continues available the whole summer. This species is found in Tasmania, Australia, Norfolk Island, and on both sides of South America, as well as in New Zealand and Japan. It is a half-hardy annual under cultivation, and was introduced into England from New Zealand in 1772 by Sir Joseph Banks, on his return from accompanying Captain Cook on his first voyage around the world, and by the English seedsmen disseminated.

New Zealand Flax. See *Phormium tenax.*

Nicotiana. Tobacco. Named in honor of *John Nicot*, of Nismes, ambassador from the King of France to Portugal, who procured the first seeds from a Dutchman, who had them from Florida. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

Of this extensive genus of annuals and perennials, the best known and most generally cultivated is *N. tabacum*, and its varieties. There are, however, several other species largely cultivated, particularly in Mexico, Central America, and the West Indies. The specific name, *tabacum*, according to Humboldt, is derived from the Haytian word for the pipe in which the herb is smoked, and which has been transferred from the instrument to the plant. *N. repanda* is largely grown in the West Indies, and furnishes the material for the celebrated Havana cigars. "Smoking is a custom of very great antiquity in both hemispheres, although, previous to the discovery of America, it was not common among the inhabitants of the Old World, and the substances smoked were either Hemp or such herbs as Coltsfoot. But when Columbus and his followers landed in Cuba in 1492, they discovered the far-famed Tobacco in common use among the natives; and subsequent explorers

found it was spread over the whole continent of America, where it had been cultivated from time immemorial. The pleasantly soothing effects of this new herb were so enticing that it soon found patrons among the adventurers, and in an almost incredibly short time after their return to Spain, tobacco-smoking began to be practiced in Europe; but it did not gain much ground among the nations of the North until the famous Sir Walter Raleigh and his companions introduced the custom into England in 1586. At first it met with the most violent opposition; kings prohibited it; popes fulminated bulls against it; and sultans sentenced smokers to the most cruel kinds of death. Persecution, however, only helped to spread it. In spite of all penalties, the custom rapidly progressed, until, at the present day, it may be said to be almost universally practiced by both civilized and uncivilized man."

Nierembergia. In honor of *John Eusebius Nieremberg*, a Spanish Jesuit, author of a History of Nature, Antwerp, 1635. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

A very interesting genus of annuals and greenhouse herbaceous perennials, natives of Central and South America. These interesting little plants well deserve attention. *N. filicaulis* and *N. gracilis* are among the most beautiful of the class of plants adapted for embellishing the flower garden in summer, or "turning out," as it is termed. A few specimens of either, in a tolerably good situation, will keep up a display from June till cut off by the autumnal frosts; nor are the other species, *N. aristata* and *N. calycina*, deficient in beauty, though not so well adapted for this purpose, because of their more extended habit. *N. rivularis*, more recently introduced, is one of the best, bearing white flowers with a pale yellow center. It is a low-growing plant, and is in flower from June till fall in the open border. This species is much used in cemetery decoration. Cuttings should be taken about midsummer, and struck in a cold frame, potting them off when well rooted, and preserving them through the winter on a dry, light shelf of the green-house. By a little judicious management in autumn, such as re-potting a tolerably good plant about the middle of September, and encouraging it to grow, flowers may be had through a great part of the winter. Cuttings may also be put in during the winter in the green-house, which will make fine plants for the border in the spring.

Nigella. Love-in-a-Mist, or Devil-in-the-Bush. From *niger*, black; the color of the seeds. *Linn. Polyandria-Pentagynia.* Nat. Ord. *Ranunculaceæ.*

Annual plants, with showy flowers, which are, however, almost hidden by their leafy involucres. *N. Hispanica* is the handsomest species. They only require sowing in March or April in the open border; or they may be sown in autumn, as they will stand the winter without protection, and will thus be ready to flower early in summer. They are mostly natives of the south of Europe, and have long been in cultivation.

Night Blooming Cereus. See *Cereus.*

Night Blooming Jasmine. See *Cestrum.*

Nightshade. See *Solanum.*

Niphæa. From *niphos*, snow; in allusion to its pure white flowers. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

A small genus of green-house herbaceous perennials, with pure white flowers. The genus

is allied to *Achimenes;* it requires the same treatment, and is increased in the same manner. Introduced from New Granada and Guatemala in 1841.

Niphobolus. From *niphobolos*, covered with snow; referring to the white covering of the spore cases. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of Ferns found in the East Indies, Australia, and Africa. They were separated from *Polypodium*, to which they bear a close resemblance. Some of the species are very beautiful, and well adapted for the Fern-case. They may be grown in a warm and sunny house, but must be sparingly watered. Propagated by spores.

Nitraria. From *nitrum*, niter; first found by Schreber near the niter works in Siberia. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Malpighiaceæ.*

Low shrubs with white flowers, which are very hardy, and will grow well in situations exposed to the sea. In gardens, the ground in which they grow should be occasionally watered with water in which saltpetre has been dissolved.

Noisettia. Named after *L. C. Noisette*, a French nurseryman. *Linn. Pentandria-Monogynia.* Nat. Ord. *Violaceæ.*

N. longifolia, the only species, is a green-house evergreen shrub, introduced from Cayenne in 1824. The flowers are cream color, produced in large clusters. Propagated by cuttings.

Nolana. From *nola*, a little bell; the form of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Nolanaceæ.*

Trailing annual plants, with pretty blue flowers, that only require sowing in early spring in the open border. *N. atriplicifolia*, the handsomest species, strongly resembles *Convolvulus minor.* Natives of Chili and Peru. Introduced in 1825.

Norway Spruce. See *Pinus excelsa.*

Nothochlæna. From *nothos*, spurious, and *chlaina*, a cloak; some of the species appear to have an involucre. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of green-house Ferns found in almost every tropical and sub-tropical country. It is related to *Polypodium*, differing only in the *sori.* Several of the species have been introduced into the Fern-house, and among them, *N. argentea*, a fine Silver Fern, and *N. flavens*, a very beautiful miniature Golden Fern. Propagated by spores.

Nuphar Yellow Water Lily. From *naufar*, the Arabic for Water Lily. *Linn. Polyandria-Monogynia.* Nat. Ord. *Nymphaceæ.*

The several species included in the genus are common in ponds and stagnant water in the Middle, Northern, and Western States, and are known as Yellow Water Lilies.

Nut Grass. See *Cyperus.*

Nutmeg. See *Myristica.*

Nutmeg Geranium. See *Pelargonium.*

Nuttallia. Named in honor of *Professor Nutall* of Cambridge, Mass., an eminent botanist. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

A genus of very pretty hardy herbaceous plants, with racemes of white, pink, or purple flowers. They are natives of the Southern States and California. They would, in this latitude, require a slight protection during winter. They are increased by seeds or division.

Nux Vomica. See *Strychnos.*

Nuytsia. *Fire Tree.* Named after *T. Nuyts*, a Dutch navigator. *Linn. Hexandria-Monogynia.* Nat. Ord. *Loranthaceæ.*

A genus of very handsome shrubs or small trees from Swan River, Australia, remarkable as being the only one in this order of parasites that grows on the ground. From its abundance of brilliant orange-colored flowers, the colonists call it the Flame-tree or Tree of Fire.

Nyctanthes. Sad Tree. From *nyctos*, night, and *anthos*, a flower; the flowers open in the evening. *Linn. Diandria-Monogynia.* Nat. Ord. *Jasminaceæ.*

The only species is a free-flowering shrub or small tree, native of India. The flowers open only in the evening, and drop before morning. Their fragrance perfumes the air at night. The flowers are gathered in the morning, and worn as necklaces, and in the hair, by the native women. As it loses its brightness during the day it has received its specific name, *N. arbor tristis*, or Sad Tree.

Nycterinia. From *nycterinos*, nocturnal; the flowers being fragrant during the evening. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

A genus of half-hardy annuals, perennials, or under-shrubs, natives of the Cape of Good Hope. A few of the species have been under cultivation, but they are chiefly plants of little interest.

Nymphæa. Water Lily. From *nymphe*, a water nymph. *Linn. Polyandria-Monogynia.* Nat. Ord. *Nymphæaceæ.*

This genus consists of beautiful water plants found in lakes, ponds, and rivers in almost all parts of the world. *N. odorata* is the double white Water Lily or Pond Lily so common and well-known throughout the Eastern and Southern States. Of this species there are several varieties, mostly having pure white flowers, remarkable for their fragrance. There is, on the Island of Nantucket, also near Barnstable, Mass., a variety with pinkish flowers, and rarely with bright pink-red flowers. They are exceedingly beautiful, and valued highly for their rarity. The cultivation of all our native species in tubs on the lawn, or wherever desired, is attended with

but little difficulty. The roots should be obtained from their native habitat as early in spring as possible, or at least before they have made much growth. Take any tub or cask, say eighteen inches in depth, put in good rich loam or muck to the depth of six or eight inches, in which plant the roots, barely covering them, and fill the cask with water, replenishing it as it loses by evaporation. In winter empty the water and remove to a cold cellar, or protect from hard freezing by a covering of leaves. This is all the care and trouble required to produce flowers almost as fine as are found in their natural homes. Artificial ponds can be made upon the lawn with but little expense, in which the Nymphæa may be grown with less trouble even than in tubs. Dig out a basin-shaped pond of any desired size, to the depth of two and a half feet in the center, cement in the same manner as for a cistern, put in some earth, and plant the same as in a tub. Cover over with boards upon the approach of cold weather, and then cover all with leaves or coarse litter sufficient to protect the cement from frost. This will not only furnish beautiful aquatic flowers, but will attract thousands of birds, particularly robins, daily for their baths. The Water Lily, when expanded, towards evening has the peculiarity of enticing myriads of insects to light on its petals, the petals gradually close as evening falls, and the insects are imprisoned.

Nyssa. Tupelo, Pepperidge, Sour Gum. From *Nyssa*, a water nymph; because of the habitat of the species. *Linn. Polygamia-Dicœcia.* Nat. Ord. *Alangiaceæ.*

A genus of beautiful low-growing trees, common in moist woodlands and low grounds throughout the United States. The wood is very tough and difficult to split, and on that account it is valued for hubs of carriage wheels, hatter's blocks, and similar work. The foliage of this genus is remarkable for its fine glossy verdure during summer, and its rich crimson tints in autumn, when it is one of the brightest ornaments of the forest.

O.

Oak. The popular name for the trees of the genus *Quercus*, which see.

Oat. See *Avena.*

Oak-leaved Geranium. See *Pelargonium.*

Obeliscaria. From *obeliskos*, obelisk, in allusion to the elevated disk of the flower. *Linn. Syngenesia-Polygamia-Frustrania.* Nat. Ord. *Asteraceæ.*

A small genus of half-hardy, showy perennials, common in Texas. They too closely resemble their allied species, the *Rudbeckia*, to become favorites in the garden.

Oberonia. Derivation of name unknown. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of Orchids, all epiphytal, having terminal spikes of minute flowers, of but little interest except to botanists. In reference to the genus Dr. Lindley says: "The resemblance to insects and other animal forms, which have been perceived in the Orchidaceous plants of Europe, and which have given rise to such names as Fly Orchis, etc., may be traced so plainly in the genus *Oberonia*, in every species, that it alone would furnish a magazine of new ideas for the grotesque pencil of a German admirer of the wild and preternatural. If the Brahmins had been botanists, one might fancy they took their doctrine of metempsychosis from these productions." They are chiefly natives of India and Africa.

Ochroma. Cork-wood. From *ochros*, pale; referring to the flowers. *Linn. Monadelphia-Pentagynia.* Nat. Ord. *Sterculiaceæ.*

O. Lagopus, a tree growing from thirty to fifty feet high, is common in the West Indies and Central America, and known as Cork-wood, where it is employed as a substitute for cork for stopping bottles, and it is also extensively used for making rafts, floats for fishing nets, and other purposes where light wood is required.

Ocymum. Basil. From *ozo*, smell; alluding to the powerful scent of the plants. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A somewhat extensive genus of fragrant and aromatic plants, mostly natives of India. The most important of them are *O. basilicum*, the Sweet or Common Basil, a tender annual, introduced from India in 1548, and *O. minimum*, the Dwarf or Bush Basil, a native of Chili, and introduced in 1573. The leaves of both species have a strong aromatic smell, and are much used in seasoning soups and various other dishes.

Odontoglossum. From *odons*, a tooth, and *glossa*, a tongue; tooth-like processes on the lip or labellum. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A very extensive genus of epiphytal Orchids, found principally in the cool mountain regions of Mexico, Peru, New Grenada, and Venezuela. Very many of the species have been introduced into the green-house, and are greatly prized by cultivators for their magnificent flowers, which are remarkable both for their size and the beauty of their colors. Many of the species have pure white flowers, variously spotted; some have a powerful odor of violets. With but few exceptions, they require to be grown in a moderately cool house. Propagated by division.

Œnocarpus. From *oinos*, wine, and *karpos*, a fruit; yields palm wine and oil. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

An exclusively South American genus of lofty Palms, consisting of several species, some of which yield large quantities of sweet-tasted oil, which is excellent for cooking, and is much used for burning in lamps.

Œnothera. Evening Primrose. From *oinos*, wine, and *thera*, imbibing; the roots of *Œ. biennis* were formerly taken after meals as incentives to wine-drinking. *Linn. Octandria-Monogynia.* Nat. Ord. *Onagraceæ.*

A genus of annual, biennial, and perennial plants, many of which are common throughout the United States, and others are natives of South America and the Eastern Continent. Some of the species are ornamental, and would find favor in most gardens, but for the fact of their being natives. Some of the annuals are truly magnificent, producing flowers nearly six inches in diameter. Some of the species are grown in the garden, and many more might be. First introduced into Europe in 1629.

Oil of Ben. See *Moringa.*

Oil of Bergamot. See *Mentha citrata.*

Oil Palm. See *Eœis.*

Oil of Origanum. See *Origanum.*

Okra. See *Hibiscus esculentus.*

Old Man's Beard. See *Geropogon.*

Old Witch Grass. See *Panicum capillare.*

Olea. Olive. From *elaia*, olive. *Linn. Diandria-Monogynia.* Nat. Ord. *Oleaceæ.*

The tree that produces the Olives and Olive Oil of commerce is a low-branching evergreen, growing from twenty to thirty feet high. The leaves bear some resemblance to those of the Willow, only they are softer and more delicate. The flowers are as delicate as the leaves, and are produced in small axillary bunches, from wood of the former year, and appear from June until August. At first they are of a pale yellow; but when they expand their four petals, the insides are white, and only the center of the flower yellow. The matured wood of the Olive is hard and compact, though rather brittle; its color is reddish, and it takes a fine gloss; on which account the ancients carved it into statues of the gods, and the moderns make it into snuff-boxes, and various trinkets, that find a ready sale to travelers in Eastern lands. An observing visitor to the Holy Land from New York says: "There is annually more olive-wood sold from the Mount of Olives to pilgrims than ever grew there." The Wild Olive is found indigenous in Syria, Greece, and Africa, and on the lower slopes of the Atlas. The cultivated one grows spontaneously in many parts of Syria, and is extensively cultivated in the south of France, Italy, and Spain, and has been, from all the accounts we can gather, from the earliest periods of the earth's history. The young Olive bears its fruit at two years old; in six years it pays the expense of cultivation; after that period, in good years, the produce is the surest source of wealth to the farmer. A common saying in Italy is, if you wish to leave a lasting inheritance to your children's children, plant an Olive. Besides its use for the production of oil, the unripe fruit is used as a pickle. For this purpose they are steeped in an alkaline solution, to extract a part of the bitter flavor; they are next washed in pure water, and afterward preserved in salt and water, to which fennel, or some aromatic, is sometimes added. The *O. fragrans* is a native of China, and is highly odoriferous, both in the foliage and flowers, and on this account is much esteemed by the Chinese, who use the leaves to adulterate and flavor tea. It is also a favorite green-house plant. It is readily increased in spring by cuttings of well-ripened wood. *O. Americana*, a native species, common from North Carolina to Florida, is an evergreen shrub or small tree, producing axillary racemes or panicles of small white fragrant flowers, and a bitter, astringent fruit about the size of a pea.

Oleander. See *Nerium.*

Olive. See *Olea.*

Olive Wood. See *Exœodendron.*

Olfersia. Named after *Olfers*, a German botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of hot-house Ferns common in the West Indies, South America, and occasionally in the East Indies. There are many species, but few of which are under cultivation.

Omphalobium. From *omphalos*, the navel, and *lobos*, a pod. *Linn. Decandria-Monogynia.* Nat. Ord. *Conaraceæ.*

A small genus of tropical trees that furnish the beautiful Zebra Wood of the cabinet-makers. The species are mostly confined to Africa and India.

Omphalodes. Venus's Navelwort. From *omphalos*, the navel, and *eidos*, like; the fruit resembles the navel. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ.*

An interesting genus of hardy annuals and perennials. They are natives of Southern Europe, Asia Minor, and the Caucasus. *O. linifolia* is a common border annual, known as *Venus's Navelwort.* The flowers are white, tinged with blue. *O. verna* is a charming, low-growing perennial, with creeping shoots, heart-shaped leaves, and brilliant blue flowers, like the Forget-me-not; sometimes, from its habit, called *Creeping Forget-me-not.* It is propagated by division.

Oncidium. From *ogkos*, a tumor; the plants belonging to this genus have warts, tumors, or other excrescences at the base of the labellum. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

This is perhaps the most extensive and varied genus in the order to which it belongs. Some

of its species have extremely large pseudo-bulbs, others have the pseudo-bulbs very small; another portion are entirely destitute of these, and have instead thick, leathery leaves, which again vary in size from two feet long and nearly half as much in breadth, to scarcely six inches in their greatest measurement; a third group are distinguished by their rounded, rush-like leaves, about the thickness of a little finger, and from two to four feet in length. Besides this, quite as much disparity exists in the size and color of the flowers, and in the length of the flower-spike, which, in some species, will attain an extent of twenty feet, while in others it is not more than three or four inches; yet every individual is beautiful and worthy a place wherever Orchidaceæ are grown. *O. papilio*, the Butterfly Orchid, is certainly as much like a butterfly as it is possible to imagine a flower to be, and as it is borne on a long, slender stem, which quivers with every breeze, it forms no bad representation of a beautiful insect fluttering over the neighboring flowers. *O. altissimum* has a spike of flowers which is sometimes ten or twelve feet in length. They are all natives of South America, Mexico, and the West Indies, and as they will thrive in a lower temperature than the Dendrobiums, and some other Orchids, they are very suitable for a small hot-house. It is better to cultivate all the larger growing kinds in pots or pans, and to place them in rather large ones, that they may not require frequent shifting, which, each time it is performed, inflicts a serious check upon the plants, in consequence of the unavoidable breaking of the roots. The soil for them should be leaf mould and sphagnum, thoroughly mixed, but not broken finely; this, with abundant drainage, a brisk, moist temperature in the growing season, shade from strong light, a careful preservation from insects and dirt, and a moderate rest in winter, will not fail to form healthy flowering specimens in a short time. The smaller species may be placed on cork or in baskets.

Onion Lily. See *Ornithogalum caudatum*.

Onion. *Allium cepa.* The Onion has been known and cultivated as an article of food from the very earliest period. Its native country is unknown, but it is believed to have originated in the East. In the sacred writings we find it mentioned as one of the things for which the Israelites longed when in the wilderness, and complained to Moses because they were deprived of their Leeks, Onions, and Garlic, of which, said the murmurers, "We remember we did eat in Egypt freely." To show how much it was esteemed by the ancient Egyptians, we need only mention that Herodotus says in his time (450 B.C.) there was an inscription on the Great Pyramid, stating that a sum amounting to 1,600 talents had been paid for Onions, Radishes, and Garlic, which had been consumed by the workmen during the progress of its erection. Even at the present day, the people of Western Asia, as well as the inhabitants of cold countries, are all large consumers of Onions, which, for culinary purposes, are more universally cultivated than almost any other vegetable. The garden varieties that have been introduced are very numerous, and their origin about as difficult to trace as the species. The justly celebrated Bermuda Onion of our markets is grown from seed annually imported from the south of Europe. Onions are also most extensively grown in the United States, one seed firm alone selling

twenty tons of the seed annually. The varieties grown are the red, white, and yellow-skinned, among which are numerous varieties, the favorite kinds being known as Yellow Danvers, White Globe, Red Globe, Wethersfield Red, White Portugal. Beginners growing the Onion for market had better consult works specially devoted to Onion culture, or works specially on Market Gardening, but for private use we will briefly detail the methods. For the earliest crop the "sets" or small bulbs should be planted as early in spring as the ground is dry enough to work, in beds four or five feet wide, and in rows nine inches apart, with two or three inches between the sets or bulblets, pressing these down about an inch or so into the soil. Grown in this way, the Onions are usually used in the green state. For the main crop the seed proper is thinly sown in drills, two or three inches deep, the rows at the same distance apart as for the sets. To insure quick and safe germination after sowing the seed, the drills should be trod along evenly with the foot, and then raked level. This plan of treading in seeds with the feet we invariably practice, particularly if the soil be dry. If not done, our hot, dry atmosphere penetrates the loose soil, partially drying up the seed, which always impedes germination, and often destroys the crop completely. The omission of practicing the firming of the soil over seeds, either by the feet, roller, or in any other manner that will accomplish the purpose, is the loss of many millions annually, not only to the garden, but to the farm. The importance of this subject is our excuse for the digression. In ten to twelve days after sowing, the Onion seed will have started sufficiently to show the rows. The ground should then be lightly hoed, so as to destroy the weeds which germinate, many of them simultaneously with the Onion seed. In the seed rows, where the hoe cannot be used, the soil should be stirred with the fingers, otherwise weeds would quickly grow up and choke the crop. When about three or four inches high the Onions should be thinned out to two or three inches apart. Kept entirely clear from weeds, the crop is ripened off in June, July, or August, according to the latitude in which it is grown. It is a curious fact, however, that Onions do not ripen their bulbs later than August; consequently, though they will grow well enough if sown late in the season, yet, if wanted to ripen so as to keep during winter, they must be sown in the first sowing of seeds in the spring.

Onoclea. From *onos*, a vessel, and *kleio*, to inclose; referring to the apparent capsules. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of hardy native Ferns, common in moist places throughout the States. One of the species is called the Sensitive Fern, for what reason we cannot say, the plant certainly having no claim to such a distinction.

Ononis. Rest-harrow. From *onos*, an ass, and *onemi*, to delight; the ass delights to browse on the herbage. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

An extensive genus of small herbaceous plants, common to Europe. A few species are tender annuals from the Cape of Good Hope. They have white, pink, or yellow flowers, some of them very pretty, but best suited to rough, waste places. They are easily grown from seed, and will adapt themselves to any place given them.

Onopordon. Cotton Thistle, Scotch Thistle. From *onos*, an ass, and *perdo*, to destroy; referring to the supposed effects on the ass. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

O. acanthium, the supposed Scotch Thistle, is a native of Europe, but has become naturalized in many parts of the United States. It grows from six to eight feet high, and is one of the most showy of the Thistle family. According to common tradition, the Danes or Norsemen, while invading Scotland, came upon the Scots unperceived at midnight, and halting while their spies were thrown forward to discover the undefended points of their enemy's camp, one of them chancing to tread upon a Thistle of this species, uttered a loud cry of pain, which roused the Scots to their danger, who at once attacked and repelled the invaders, gaining a complete victory; and henceforth they adopted the Thistle as the national emblem. In 1540 James V. instituted an order of knighthood called the Order of the Thistle.

Onychium. From *onyx*, a claw; shape of the lobes of the fronds. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of very elegant Ferns found in Japan, Africa, Australia, and the East Indies. A few of the species are under cultivation, and among them *O. Japonica*, a delicate, funnel-like Fern, fragile, fairy-like, yet one that succeeds well with the most ordinary green-house treatment. It requires deep shade. Propagated from seed. Introduced in 1864.

Opera Girls. See *Mantisia.*

Ophelia. From *opheleia*, serviceable; plants useful in medicine. *Linn. Pentandria-Digynia.* Nat. Ord. *Gentianaceæ.*

This genus is composed of one species, a pretty little annual, with starry pink flowers, allied to the Gentian. Seeds should be sown early in the hot-bed or in the green-house, and planted out as soon as the border is ready for tender plants. It is a native of the East Indies. Introduced in 1836.

Ophiopogon. From *ophis*, a serpent, and *pogon*, a beard. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A genus of hardy herbaceous perennials from China and Japan, having racemes of white, yellow, or purple flowers, on one-sided racemes. The genus is allied to *Convallaria.* None of the species possess great beauty.

Ophrys. From *ophrys*, eyebrows; referring to the fringe of the inner sepals. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of terrestrial Orchids, chiefly natives of England. They are exceedingly difficult to manage, but produce their flowers, which are of rare beauty, freely in early summer, in fields and dry pastures. *O. apifera* looks as though a bee were buried in the flower; another, *O. aranifera*, has the lip in the form of a spider; and in a third, *O. muscifera*, the whole flower resembles a fly.

Opium. See *Papaver somniferum.*

Oporanthus. From *opora*, autumn, and *anthos*, a flower. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A hardy, free-flowering bulb from the south of Europe. The flowers bear a strong resemblance to the Yellow Crocus, for which, indeed, if it flowered at the same season, it might easily be mistaken. It is very ornamental, and should be planted in beds with the Colchicum, as they flower at the same season, and contrast finely

in color. It grows freely in a light soil, but should have a slight protection in winter to perfect the bulbs. It generally comes into flower with our first frosts, the leaves remaining green during the winter. This bulb was formerly classed as *Amaryllis luteu*, and none but the keen eye of the botanist can see any difference.

Opuntia. Prickly Pear, Indian Fig. A Latin name, of which the derivation is not applicable to the species now placed under it. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

There are upward of a hundred and fifty species of the *Opuntia* or Prickly Pear, all of which are natives of this continent. They are found chiefly in Mexico, California, Peru, Brazil, the West Indies, and a few in the United States. The plants, when old, are hard and woody, but the new growth remains succulent or fleshy for some time. Some species grow erect and tree-like, while others are procumbent or creep on the ground, and nearly all have spines. The upright growers sometimes reach a height of ten feet or more, and one kind even twenty feet. Some of them (*O. Tuna*, for example,) have been introduced into Southern Europe, Africa, and other places, where they are cultivated for the sake of obtaining Cochineal. The flowers (except in *Nopalea* are generally a dull reddish orange. The fruit is pear-shaped, two or three inches long, and of a bright carmine color when ripe. The fruit is edible, and has a pleasant sub-acid flavor, being considered cooling and refreshing, and is much used in the West Indies and other places. The juice is sometimes used as a water color, and also for coloring candies. In Mexico the plant is used for hedges as well as for the Cochineal insect, and from the fruit is prepared a beverage called Colinche. Writers tell us that in Algeria the French make from the old wood a number of ornamental articles, such as flower trays, fancy baskets, etc., and even veneering. The Opuntia, it will be seen, is a plant of considerable commercial value. Botanists have taken three species from *Opuntia*, to which they have given the generic name *Nopalea;* the reason of which may not be apparent to the common observer. In the new genus the flowers have erect petals, which are drawn together at the top instead of being expanded, as they are in *Opuntia;* the stamens are longer than the corolla, but shorter than the style. The stems are round, or nearly so, with jointed, fleshy, flat branches; but, unlike *Opuntia*, the tubercles upon the branches are not always armed with spines. The flowers, instead of being yellow or orange, like *Opuntia*, are reddish or crimson. Taking the characteristics all together, we ought to be able to distinguish the one from the other, and yet not be satisfied with the separation. In view of the commercial value of the product, we shall next allude somewhat briefly to the *Nopalea* (*Opuntia*) as connected with the cultivation of the Cochineal insect, *Coccus Cacti.* There are two species grown chiefly for this purpose, the *Napolea cochinillifera* and *N. Tuna.* The first grows about eight feet high, and its branches give it a tree-like appearance. The stem and older branches are nearly round and grayish in color, but the younger growth is flat and deep green in color. The joints are from six to twelve inches long, oblong in form, mostly without spines, but having, when young, a growth of fleshy leaves, which soon drop off, leaving a scar and a tuft of short wool and bristles. Though the name *cochinillifera*, or cochineal bearing, has

been given to this particular species, it is not the only one upon which this insect feeds, for in Mexico *N. Tuna* is even more largely grown for the same purpose. *Nopaleries* is the name given to plantations for rearing the Cochineal insect. The male only is winged, and somewhat resembles the Aphis, and the two are not very distantly related to each other; both feed in the same way, drawing the juices of the plant through a proboscis. It is the female, however, which yields the highly-prized dye. A plantation will sometimes contain from fifty to sixty thousand plants. The plants are grown in rows, but are not allowed to grow to their natural height for convenience in handling. In the month of August the female insects are placed on the plants, and in about four months thereafter the first crop is fit to be gathered, and another prepared for, three being taken in the course of the year. When fully grown the insects are brushed off and dried in ovens, when they are ready for sale. The value of this industry is such that the Prickly Pear has been placed on the coat of arms of the Mexican Republic. Though Mexico is the native place of the Cochineal, it is now largely grown in New Grenada and the Canary Islands, and to a less extent in some parts of Southern Europe and Africa. The annual produce amounts to thousands of tons, the usual price being about two thousand dollars per ton, which gives us an idea of the value of the industry. There are many interesting facts connected with the Coccus family, as regards both their natural history and their commercial value, which we must pass over, simply remarking that it is to a member of this family that we are indebted for some of the best shell and other lacs. It may be said of them, as it cannot be said of most insects, that they make some amends for the injury they do to plants. Of our native species of Prickly Pear, *O. vulgaris* is the common Prickly Pear of New York and some of the Eastern States. It is very hardy and tenacious of life, growing among the rocks where there is scarcely sufficient soil to cover the roots. Its flowers are bright yellow, very handsome, and produced freely. There are other American species which produce larger and even handsomer flowers than *O. vulgaris*. The other members of this order take precedence in the greenhouse, on account of their rarity, and, in some instances, more showy flowers.

Orache or **Mountain Spinach.** See *Atriplex.*

Orange. See *Citrus.*

Orchis. From *orchis*, testiculate; referring to the two oblong, bulb-like roots of many of the species. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A dwarf genus of terrestrial Orchids, mostly unpretending, yet beautiful little plants. They are common in England and throughout most of Europe, *O. mascula* and *O. maculata* being among the most beautiful and interesting plants of the British woods. With the exception of a few species, they are perfectly hardy, and can be grown in the outside border, or in pots, forced like the Hyacinth. They do not like being moved from their native homes, but are easily produced from seed, which, if sown in a frame of light turfy loam, will make flowering plants in three years. *O. spectabilis* (Showy Orchis) is common in rich woods throughout the Northern, Eastern, and Western States. This species does well under cultivation. Propagated by division.

Oreodoxa. From *oreos*, a mountain, and *doxa*, glory; alluding to the lofty stature of some of the species. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Palmaceæ.*

A small genus of very tall-growing and handsome Palms, inhabiting the West Indies and tropical America. Some of the species are among the most graceful of Palms. *O. regia*, the Royal Palm, is a favorite cultivated species, and is largely used in the decoration of rooms. *O. oleraceæ*, the West Indian Cabbage Palm, sometimes attains a height of one hundred and seventy feet, with a very small trunk, perfectly straight and cylindrical. The heart of the young leaves is cooked like Cabbage, and the pith affords Sago. Oil in considerable quantities is obtained from the fruit. Young plants are obtained from seed.

Oricola. See *Primula.*

Origanum. Marjoram. From *oros*, a mountain, and *ganos*, joy; referring to the natural places of growth. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A genus of hardy and half-hardy herbaceous plants and shrubs, natives of Europe and Northern India. *O. vulgare*, the Wild Marjoram, common throughout Europe, and naturalized in this country, furnishes the Oil of Origanum, which is an acrid stimulant. *O. onites* and *O. majorana* are included in the Pot or Seasoning Herbs, under the name of Marjoram. They are natives of Sicily and Portugal respectively. There are a few ornamental species sometimes grown as house plants, the more common of which is *O. sipyleum*, a native of the Lavant, and popularly known as Hop Plant. It is of easy culture, and is propagated by cuttings.

Ormosia. Bead Tree. From *ormos*, a necklace; in allusion to this use of the seeds. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A small genus of ornamental tropical trees, natives of Guiana and the West Indies. They are all too large for introduction into the greenhouse. *O dasycarpa* is the West Indian Bead Tree, or Necklace Tree, the seeds of which, like those of *O. coccinea*, a native of Guiana and Brazil, are nearly round, beautifully polished, and of a bright scarlet color, with a black spot at one end, resembling beads, for which they are substituted, being made into bracelets, necklaces, or mounted in silver for studs or buttons. The seeds are picked up on the seacoast in various places, at very great distances from where they grow, having been carried by strong oceanic currents. They are usually mixed in with small shells, and sold as "Sea Beans," the common error being that they are the fruit of some sea plant.

Ornithidium. From *ornis*, a bird, and *eidos*, like; the upper lip of the stigma is beak-like. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of curious little Orchids, but not of sufficient beauty or interest to warrant their introduction into the Orchid house. They are regarded as weeds among air plants.

Ornithogalum. Star of Bethlehem. From *ornis*, a bird, and *gala*, milk. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A rather large genus of bulbous plants, the species of which are natives of Southern Europe, Western Asia, and the Cape of Good Hope. Several of the species are hardy, and grow so freely as to become a nuisance; this is particularly so with *O. umbellatum*, the pretty little Star of Bethlehem, that has escaped in many places

from the gardens into the meadows, and taken almost complete possession, and become very troublesome. *O. caudatum*, a tender species from the Cape of Good Hope, has very large, watery-looking bulbs; the leaves are broad and very long, and they wither and shrivel up at the tip, so as to have a round, tail-like appearance; whence their common name, Long-tailed Ornithogalum. This species is sometimes called Onion Lily, and is a favorite with the Chinese, who grow it in dishes filled with water and gravel. Its tenacity of life is most remarkable, as it will grow anywhere and under almost any circumstances, in water or hung up against a wall in a dry room, in rich earth or poor, indoors or out, and, with slight protection, will endure our winters. Its flower scape is from two to four feet in length, and it keeps in bloom for several months. There is but little beauty in the flowers of most of the species. There are some, however, that have long been grown in the green-house, and are still esteemed. All the species are increased by offsets.

Ornus. Flowering Ash. From *oreinos*, ancient name of the Ash; applied on account of the resemblance and affinity. *Linn. Diandria-Monogynia.* Nat. Ord. *Oleaceæ.*

Hardy, white-flowered, deciduous trees. The genus includes about a dozen species, all interesting on account of their clustered panicles of pure white flowers, borne at the extremities of the branches. In Sicily several of the species are extensively grown under the name of Manna Ash, the trees yielding the saccharine substance commercially known as Manna, the properties of which are purgative instead of nourishing; consequently it could not have been the Manna that sustained the Hebrews in the wilderness, although it is the only substance known by that name at the present day.

Orontium. Golden Club. Derivation of name obscure. *Linn. Hexandria-Monogynia.* Nat. Ord. *Orontiaceæ.*

This genus consists of two species of aquatic plants. *O. aquaticum* is common in ponds from Maine to Florida, near the coast. *O. Japonicum*, a native of Japan and the East Indies, has leaves like Lily of the Valley, green on the upper side, and covered with very minute hairs, so that they look like fine velvet. These leaves are readily eaten by cattle and swine in spring. The seeds are boiled and eaten like Pease by the natives. This species makes a beautiful plant for the aquarium.

Orobus. Bitter Veitch. From *oro*, to excite, and *bous*, an ox; nourishing food. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

An extensive genus of hardy herbaceous perennials. A well-known type is *O. vernus.* Modern botanists now include it with *Lathyrus.*

Osage Orange. See *Maclura.*

Osbeckia. Named after *Peter Osbeck*, a Swedish naturalist. *Linn. Octandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

A genus of green-house evergreen and deciduous shrubs and herbs, natives of tropical Asia, Africa, and the adjoining islands. The flowers are small, of rose, purple, or violet, borne in terminal racemes. The plants are rarely met, excepting in large collections.

Osier. See *Salix viminalis.*

Osmorhiza. Sweet Cicely. From *osme*, scent, and *rhiza*, a root; roots sweet scented. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

A small genus of uninteresting herbaceous perennials. They are common in rich, moist woods, and popularly known as Sweet Cicely.

Osmunda. Flowering Fern. From *Osmunda*, one of the names of Thor, a Celtic deity. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of ornamental Ferns, found widely distributed throughout the temperate regions of both hemispheres. A well-known species is *O. regalis*, or Royal Fern. There are several species common in swamps and wet places throughout the United States. Most of them bear transplanting well, and make beautiful plants for a shady border.

Ostrya. Hop Hornbeam, Iron Wood. From *ostryos*, a scale; scaly catkins. *Linn. Monœcia-Polyandria.* Nat. Ord. *Corylaceæ.*

O. Virginica, the only native species, is a tree of moderate size, remarkable for the extreme hardness of its wood. It is of slow growth, forms a compact top, with small green leaves. The furrows of its bark are extremely fine, by which it is readily distinguished.

Oswego Tea. See *Monarda.*

Othonna. Ragwort. From *othone*, linen; referring to the soft, downy clothing of the original plant. *Linn. Syngenesia-Necessaria.* Nat. Ord. *Asteraceæ.*

An extensive genus, the species of which are mostly coarse-growing green-house or frame annuals, perennials, and low shrubs. With but few exceptions the flowers are yellow. They are natives of the Cape of Good Hope and the African shores of the Mediterranean. But few of the species merit a place in the garden. *O. crassifolia*, one of the Cape species, is a handsome and showy plant, of a trailing habit, with singularly glaucous and fleshy leaves, and handsome yellow flowers, opening only in the sunlight. It is particularly well adapted for planting under shrubs, or for baskets, vases, or rustic designs. It grows freely in a light soil, and is increased by cuttings and leaves.

Ostrich Fern. See *Struthiopteris.*

Ouvirandra. Lattice or Lace-leaved Plant. From *ouvirandrano*, the native name; signifying water-yam, the roots being eatable. *Linn. Hexandria-Monogynia.* Nat. Ord. *Juncaginaceæ.*

A genus of aquatic plants, natives of Madagascar. They are popularly known as the *Lattice* or *Lace-leaved Plants*, from the singular appearance of the leaves, resembling open lattice-work, or apparently consisting of only a skeleton of nerves. The leaves grow in radiating clusters from the rhizome, and float just beneath the surface of the water, presenting a flat side to the light. The plant is not only curious, but a valuable one to the natives of Madagascar, who collect its fleshy, farinaceous roots as an article of food. It grows on the margins of running streams in shallow water. It is rare in collections. One of the most interesting plants for the aquarium.

Oxalis. From *oxys*, acid; the leaves have an acid taste. *Linn. Decandria-Pentagynia.* Nat. Ord. *Oxalidaceæ.*

This genus comprises a great number of species, differing widely in their habits and manner of growth. Some are annuals, some herbaceous perennials, some green-house shrubs. Many have tuberous roots, others are bulbs. Some are tender, others perfectly hardy. The flowers are always handsome in form and beautiful in color. The leaves vary considerably, but they are most commonly trifoliate, and slightly acid. Many of the species are grown in

the green-house, one of the most useful being *O. floribunda*, which was introduced from Brazil in 1829. This very beautiful species requires the protection of the green-house during winter. It has bright rose-colored flowers, which are produced in great abundance during nearly the whole year. There is a variety of this species with pure white flowers. Both are rapidly increased by division of the root. Of the bulbous species, *O. Bowiei* is decidedly the handsomest. The flowers are large and of a most brilliant rose color, and produced in the greatest profusion. There is also a white variety of this species. This is generally cultivated as a green-house species; it will, however, endure our winters if planted in a rockery or in the border; and so tenacious is it of life that it will dispute possession with almost any other plant in the bed. This species was introduced from the Cape of Good Hope in 1824. One of the most desirable for conservatory decoration is *O. lutea*, another Cape species, with large terminal clusters of golden yellow flowers, on long slender scapes. *O. versicolor* is still another beautiful species. It requires the sunlight to expand its flowers; but they are generally thought to be more beautiful when closed than when open. The colors are crimson, white, and a pale shade of yellow. It is rapidly increased by offsets. *A. acetosella*, our common Wood Sorrel, is a native of Great Britain, and by naturalization has become only too common throughout the States. All the species under cultivation are either from the Cape of Good Hope or South America, and all alike are of easy culture.

Ox-eye Daisy. See *Leucanthemum*.

Oxyanthus. From *oxys*, sharp, and *anthos*, a flower; referring to the sharp-toothed calyx and corolla. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ*.

A genus of white-flowered evergreen shrubs from Sierra Leone, allied to Gardenia, and requiring the same treatment in cultivation and propagation.

Oxycoccus. Cranberry. From *oxys*, sharp, and *kokkos*, a berry; sharp acid taste of the berries. *Linn. Octandria-Monogynia.* Nat. Ord. *Vaccinieæ*.

"The Cranberry is a familiar trailing shrub, growing wild in swampy, sandy meadows and mossy bogs, in the northern portions of both hemispheres, and produces a round, red, acid fruit. Our native species, *O. macrocarpus*, so common in the swamps of New England, and on the borders of our inland lakes, as to form quite an article of commerce, is much the largest and finest species; the European Cranberry, *O. palustris*, being much smaller in its growth, and producing fruit inferior in size and quality. Also the Russian, *O. viridis*, a medium-sized variety. Of the *O. macrocarpus*, there are three varieties: the 'Bell-shaped,' which is the largest and most valued, of a very dark, bright red color; the 'Cherry,' two kinds, large and small; the large one the best, of a round form, a fine dark red berry, nearly or quite equal to the Bell-shaped; and the Bugle Oval, or Egg-shaped, two kinds, large and small, not so highly colored as the Bell or Cherry, and not so much prized, but still a fine variety."—*Downing*. Cranberry culture, where the conditions are favorable, is very profitable; and as the subject is receiving much attention, both in this country and in Europe, it may be of service to give a few facts in regard to the best methods of raising Cranberries successfully. The selection of land for the cultivation and growing of the plants is the first consideration; for, unless it is adapted to their growth, it will be useless to plant them. The soil best adapted is low, moist land, suitably drained, so that the water will be from twelve to eighteen inches lower than the surface of the ground. They will grow on moderately damp soil that can be plowed or cultivated, so as to make it friable and soft, or on the borders of streams or ditches, as the plant draws its nourishment from air and water; light sandy soil, or muck, covered with two or three inches of sand, is the best adapted to their culture. They will not do well on *dry* sand or clay. If planted on rich muck or loam, they grow rank and strong, sometimes eight or ten feet, and cover the ground with a net of vines three or four inches thick. As the fruit grows on the end of the shoot, the rank growth throws out but few buds; but if sanded over, the shoots are of short growth, and throw out more and stronger fruit buds. There are large portions of land all over our country that is now of but little value, too wet or too cold for grass, that would grow large quantities of fruit, if properly prepared by draining and sanding. In preparing the ground, if it be wet and spongy, it should be well drained, so as to leave the water about ten or twelve inches below the surface. It can then be prepared by burning over and removing the top soil, carting it off for compost, or burning when it is dry; by leveling the ground, and covering it with pure sand (free from seeds of weeds) two or three inches deep, to keep the surface loose, and to prevent foul grass from choking the plants. Some growers prefer to put on two or three inches of sand, (on the ice,) and after two years' growth, to put on one or two inches more, which, we think, is an improvement. The sand should not be mixed with the soil, but placed in a layer of two inches over it; it will thus keep down all weeds. The roots of the Cranberry are very fine, and do not retain their vitality; but the plant throws out new roots from the stem. In putting out the young plants, make a hole four or five inches deep, with a stick or dibble, in which place the plant, and press the soil around it firmly with the foot. Leave an inch to an inch and a half of the young vine above ground. When planting, if practicable, water freely, to settle the sand around the plant; the stem will soon begin to grow. They are very tenacious of life, and if, when received, they are apparently dry, put them into water from five to six hours before planting; they will regain their freshness and be sure to grow. Where failures have occurred, it has been owing to their having been taken from the parcel and put out in a dry soil. Another plan adopted by some growers, is to take the vines up without roots, often four or five feet in length, which they cut and sow in drills, or lay the vines down in a trench, and cover with soil; or with a stick two inches wide and half an inch thick crowd the vines down into the soil three or four inches deep. It will take eight to ten barrels of clean vines per acre. In this case they are not planted so deep, and are not so apt to live as when planted with a dibble, as advised above, with the roots attached. They are usually sold in parcels of one hundred each, and will pack more closely, and cost much less than barreled vines, and are the only kind that can be forwarded by mail. Ten thousand of these will plant more ground than eight or ten bar-

rels of vines. If placed two feet apart each way, 10,000 will plant an acre; they can be cultivated with a cultivator or horse hoe, to keep down the grass and weeds; and after one or two years of cultivation they will take care of themselves, or it will only be necessary to pull out what little grass may grow. If wanted in small patches or in gardens, they can be planted a foot apart, and will cover the ground much sooner. Vines usually sold by the barrel have clinging to the roots earth that is full of the seeds of weeds, which are introduced into the soil, demanding much labor to keep the plants clean; it is therefore better to purchase clean vines. The Cranberry can be planted out at almost any season of the year when the ground is not frozen; in the fall, from September until the ground freezes; in spring, until July; in the South or West, from October to March. If the vines are received too late for planting, or if frozen, they can be covered with earth or damp moss in a box, and placed in a cellar until they can be planted out, after being placed in water for a few hours. Overflowing or flooding is desirable, if not indispensable to complete success. The water may remain on the vines till the 10th of May in the latitude of N. Y., or until there is no danger from frost. It may cover the vines from one to two feet or more, and if it can be let on or off at will for a few hours during the season, it will prevent drought, and also destroy the worm, which is sometimes very destructive. The water should not stand on them when in flower, as it would injure the pollen and prevent fruiting, or when the fruit is quite green. The best known and most extensively cultivated is the *Bell*, of which there are two or three varieties. The *Cape Cod Bell* is the best known, and has been more extensively cultivated than any other variety. The color is a dark red, but it often varies in color and shape on different soils, but its bearing and ripening qualities are the same, being of good size and medium early. The *Bugle* is an old variety, rather early, of medium size to large, a good keeper, color dark scarlet, and a medium bearer. The *Cherry* generally grows on wet soil or moist upland. Of this there are a number of varieties; but the one most commonly planted is of medium size, round shape, bright red color, a good bearer, but rather later than other varieties; it is a leading market sort. Another, called *Mottled Bell*, pink on white ground, is a very handsome fruit, but late and little grown. Two new varieties have lately been introduced, which, by a number of years' cultivation, we think superior to the above in several particulars, being early and constant bearers when others fail, and in the future they are likely to become leading sorts. In some sections there would have been a short crop but for these kinds. The *Eaton's Early Black Bell* stands first. It ripens very early, is fully colored by the 5th of September in New England, is uniform in color and shape, of a very handsome dark red color, almost black, of medium and uniform size, a great and constant bearer, a good keeper, and the vines hardy; and being early, it brings the highest price in market. The *Mansfield Creeper* was first discovered in a corn-field, and transplanted to a Cranberry bed. In its new position it was found to be entirely different in its growth and habit from all other varieties. It seemed to creep on the ground and take root at every joint, producing bearing shoots every two or three inches on the vine, and throwing out fruit buds for a

fresh start another year. It is a few days later than the Eaton Bell. Both are adapted to upland culture. It is of large size and a great bearer; the flesh is more tender, and not so acid; color dark scarlet on one side, the other side nearly white, and slightly mottled; shape roundish oval. It is a fine keeper. A writer in the New Hampshire Journal of Agriculture describes a plot of nearly three-fourths of an acre, completely covered with beds of Cranberries, the vines "thickly matted and in a flourishing condition." The grounds, which were naturally slightly moist, were prepared as for Strawberries, and then planted with Cranberry vines. They were placed in rows or beds, in the same manner as Strawberry plants, and then served with a top dressing of meadow mud, which had been taken from its natural bed and exposed to the frosts of one winter, by which it was rendered very loose and friable. They were afterward cultivated with the hoe until they had completely covered the ground, simply passing between the beds, pulling out such weeds and grass as might occasionally be seen growing among them, and killing the worms, if any were found on the plants. The proprietor succeeded in obtaining a good crop, or an average of 160 bushels to the acre. The fruit was of excellent quality, and sold readily for one-third more than the common uncultivated Cranberry of the swamps in that vicinity. The above writer considers any soil that will produce a crop of Indian corn suitable for a Cranberry plot. In regard to the success of Mr. Bates in his method of culture, Mr. B. G. Boswell, of Philadelphia, gives the following testimony, viz.: "As the plant naturally grows in a very wet soil, it is generally supposed that it will not thrive in a dry soil; but this idea is erroneous. Mr. S. Bates, of Massachusetts, has grown the Cranberry on a dry soil for several years, with the utmost success. His method is to plow the land, spread on a quantity of swamp muck, and after harrowing the soil thoroughly, set out the plants in drills twenty inches apart, hoeing them the first season. After this no cultivation is needed. By the above method the plants will cover the ground in three years." It is hoped that the above details will prove of service to those about to embark in the culture of this useful fruit. The Cranberry is also adapted to garden culture. Every family can have a garden patch. A moist but not clayey soil should be selected, and the ground prepared by plowing or spading, as for strawberries. The entire surface should be covered one or two inches with fine muck, or one or two inches of sand can be substituted. They can be planted one foot to eighteen inches apart, and four to six inches in depth. They are also highly ornamental in pots, the fruit hanging on the vines until the flowers appear for the next crop. Experiments in New England indicate that the Cranberry can be cultivated on upland, though generally with moderate success. On Long Island, however, there are Cranberry patches of five or six acres, on upland soil, that produce from 50 to 100 bushels per acre, which is considered a satisfactory result, as manure is unnecessary, and the trouble of cultivating, gathering, and marketing the Cranberry is less than that required by the Strawberry or any of the small fruits.

Oxylobium. From *oxys*, sharp, and *lobos*, a pod; the seed-pods ending in a point. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

Handsome spring-flowering green-house plants from New Holland. They should be occasionally stopped while young, to ensure dwarf, bushy specimens. The flowers are orange and yellow, are freely produced and very pretty. They are increased by cuttings or from seed. Introduced in 1805.

Oxyura. Supposed to be from *oxys*, sharp, and *oura*, a tail; but the application is not very apparent. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

O. chrysanthemoides, the only species, is a hardy annual with yellow flowers, somewhat resembling the *Chrysanthemum*. It is a showy plant, and easy to grow. It is a native of California. Introduced in 1834.

P.

Pachyphytum. From *pachys*, thick, and *phyton*, a plant; referring to the fleshy leaves. *Linn. Decandria-Pentagynia.* Nat. Ord. *Crassulaceæ.*

P. bracteosum is a green-house succulent, allied to *Echeveria*, and grown for its unique appearance. There are other species, but they are less ornamental than this.

Pæonia. Named after the Greek physician *Pæon*, who is said to have employed it in medicine, and used it to cure Pluto of a wound inflicted by Hercules. *Linn. Polyandria-Digynia.* Nat. Ord. *Ranunculaceæ.*

The Pæonies common in our gardens are divided into two groups, viz., those which are allied to the Tree Pæony, (*Pæonia Moutan,*) and which are all more or less shrubby, and the common herbaceous Pæonies. The herbaceous Pæonies are well-known ornaments of our gardens, where they are great favorites, from their showy flowers, their great hardiness, and their easy culture: all essential qualities for a large garden, and for such only are they desirable. The roots of these plants are composed of bundles of carrot-like tubers, which may be separated from each other to increase any particular species or variety; or the tubers of the common Pæonies may be grafted with shoots of any choice kinds. The Tree or shrubby species are chiefly increased by grafting on the roots of the herbaceous sorts. Of the herbaceous species, *P. officinalis*, the old double crimson, was the first introduced into English gardens, having been brought from Switzerland in 1548, where it is indigenous, as well as in many other parts of Europe and Asia. *P. albiflora*, the old double white, is a native of Siberia, and was introduced at about the same period. *P. tenuifolia*, the Fern-leaved Pæony, is a native of Russia, from whence it was introduced in 1765. The fine, Fern-like foliage of this species renders the plant a beautiful object independently of its brilliant flowers. There is a double variety of it. From a limited number of species, several hundred hybrids have been produced, many of which are very beautiful, but scarcely superior to the species, yet necessary to keep alive the interest in the genus. One or two herbaceous species have been found in Oregon and California, but are inferior to the European species. *P. Moutan* and its varieties are natives of China and Japan, principally on Mount Ho-an, where it is reported they grow to the height of ten feet. The native species is purple, but there are white, pink, pale purple, and mottled varieties. There have lately been raised some very beautiful varieties of the Tree Pæony. The shrubby species were first introduced in 1794.

Pæony. See *Pæonia.*

Paint Root. See *Lachnanthes.*

Palafoxia. Named by Lagasca in honor of *Palafox*, a Spanish general. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A genus of rather coarse-growing herbaceous and shrubby perennials, with white, flesh-colored, or purple flowers, produced in rather loose paniculate or corymbose heads. The several species are common from Carolina to Texas.

Palestine Lily. *Arum Palestinum.* See *Arum.*

This is a singular and beautiful species of the Calla tribe, called by some "Black Calla," as its dark purplish-crimson flowers are almost identical in shape with the well-known Calla, (*Richardia Æthiopica,*) or Lily of the Nile. We believe it was first introduced here in 1876, though long known in Europe. It is probable that it may yet become a plant of value, if grown in the manner that our Callas are here grown, its unique color being its great novelty. Unlike many species of the genus, the odor is very agreeable, somewhat resembling the Violet. Propagated by offsets.

Paliurus. Christ's Thorn. Name of a town in Africa. *Linn. Pentandria-Monogynia.* Nat. Ord. *Rhamnaceæ.*

There are but two species in this genus, both hardy deciduous shrubs, natives of Southern Europe and Western Asia. They are handsome shrubs, well adapted for shrubberies. The fruit of *P. aculeatus* is very singular, appearing like a head with a broad-brimmed hat on, whence its French name Porte Chapeau. This is the plant that is supposed to have furnished the thorns used for plaiting the crown placed upon Christ's head before His crucifixion. It has flexible branches, capable of being easily plaited; and each leaf has two sharp spines at its base, one of which is straight and erect, and the other curved and bent downward so as to form a hook. There is some difference of opinion as to whether this is the plant that afforded the "thorns," or whether it was *Zizyphus Spina-Christi*, for both of which the distinction has been claimed.

Palms. The popular name for the plants belonging to the natural order *Palmaceæ*. They are arborescent plants, with simple, rarely branched trunks, marked with the scars of the leaves, which are terminal, pinnate, or fan-shaped, with plicate vernation and parallel simple veins, and often with spiny petioles. Natives of tropical regions chiefly, they impart to them much of their botanical features. The greater part of them have unbranched stems, which sometimes attain a height of a hundred

feet, and send out clusters of large leaves, from the axils of which bunches of flowers proceed. Although the flowers are small, the inflorescence, taken collectively, very often has a most imposing aspect. Linnæus called them the Princes of the Vegetable Kingdom, a designation which they well deserve. Martius estimates the species at nearly six hundred, of which about one-sixth have fan-shaped leaves. They have been divided by him into various tribes, depending chiefly on the nature of the ovary ovules and fruit; and sections are formed according as the leaves are pinnate or flabelliform, and the stems spiny or not. The properties of the plants of this order are quite various. In the countries in which they grow, they are used for supplying food and for forming habitations. The fruit of some is edible. Many supply oil, wax, starchy matter, and sugar, the last being fermented so as to form an intoxicating drink. Their fibers are employed for ropes, and the reticulum surrounding their leaves is sometimes manufactured into brushes and brooms. These products also enter largely into commerce, and are sources of very considerable wealth. The Palm of the Bible seems to be *Phœnix dactylifera*, or Date Palm, the drupaceous fruit of which supplies food to many of the inhabitants of Arabia and Africa, and is largely exported to different parts of the world, the United States receiving a large share. *Cocos nucifera*, the Cocoanut Palm, is one of the most useful of the family, supplying food, clothing, materials for houses, and utensils of various kinds, besides ropes and oil. The Cocoanuts form an important item of commerce, and are now "desiccated" or dried in very large quantities in New York and other places. The Palm Oil imported from the west coast of Africa is obtained by bruising the fruits of *Elæis Guineensis* and *E. melanococca*. The Betel Nut is the produce of *Areca catechu*, and from it an extract is prepared of an astringent nature resembling Catechu. Fine Sago is said to be procured from *Sagus lævis* and *S. Rumphii*, found in the eastern islands of the Indian Ocean. Sago, sugar, and a kind of Palm wine are procured from *Caryota urens*. The date sugar of Bengal is the produce of *Phœnix sylvestris*. *Ceroxylon* or *Iriartea andicola* yields wax, which forms a coating over its trunk. *Copernicia cerifera* is another wax-producing Palm. *Calamus Rotang* is used as cane under the name of Rattan, and has a variety of uses in the mechanic arts. *Calamus rudentum*, the Cable Cane, a native of the East Indies, Cochin-China, and the Moluccas, grows sometimes to the length of five hundred feet. The fruit of *Attalea funifera* is known by the name of Coquilla Nut, and its hard pericarp is used for ornamenting umbrella handles, etc. The spathe of *Manicaria saccifera* comes off in the form of a conical cap, and is used as a covering for the head in the West Indies. *Chamærops humilis* is the only European species of Palm. *Hyphæne Thebaica*, the Doom Palm of Egypt, has a trunk which divides in a dichotomous manner; its pericarp is used as food, and has the taste of gingerbread. In the parched districts between the Rivers Dande and Zenza, in tropical Africa, Weiwitsch came upon a Palm forest five leagues in length, which consisted exclusively of the crowded stems of a branched Palm belonging probably to *Hyphæne*. Like most African Palms, it yields an excellent wine. *Raphia* has given the gardener his best tying material. Other examples might be added of the usefulness of this noble family of plants; but the above condensed view will probably suffice to give the reader some proper conception of the utility of a class of plants that are now beginning to be largely used by us for ornamental and decorative purposes.

Palm Oil. See *Elæis*.

Palma Christi. See *Ricinus communis*.

Palmetto. See *Sabal Palmetto* and *Chamærops Palmetto*.

Palumbina. Named from *palumba*, a dove. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

P. candida, the only species, is a beautiful little epiphytal Orchid from Mexico. It was formerly known as *Oncidium candidum*. The flowers, which are produced on delicate stems, are waxy white, with yellow center. This plant succeeds well grown in a green-house. It is increased by division.

Pampas Grass. See *Gynerium*.

Pampas Rice. See *Sorghum cernuum*.

Panax. Ginseng. From *pan*, all, and *akos*, remedy; referring to the stimulant drug Ginseng, to which miraculous virtue is ascribed by the Chinese. *Linn. Polygamia-Dioecia.* Nat. Ord. *Araliaceæ*.

A genus of coarse-growing herbs, shrubs, and trees, mostly from tropical Asia and America. *P. quinquefolium*, the American Ginseng, is a hardy herbaceous plant, common in most of the States. The wonderful medicinal properties attributed to it are not appreciated at home, and its cultivation is consequently neglected.

Panama Hat Palm. See *Carludovica*.

Pancratium. From *pan*, all, and *kratys*, potent; supposed medicinal qualities. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ*.

An extensive genus of half-hardy and green-house, lily-like bulbous plants, with long strap-like leaves, mostly deciduous, a few only being persistent. The flowers are white or greenish-white, produced in an umbel on a solid scape about two feet high. The species are found in the south of Europe, North Africa, Syria, Arabia, and in several of the more southern of the United States. *P. maritimum* is the Sea Daffodil, common in the sands on the coast of the Mediterranean. Its flowers are pure white and delightfully fragrant. *P. Carolinianum* is common in salt marshes from South Carolina to Florida. Chapman, in his "Southern Flora," makes no distinction in the two species. There are several other species noticed in his Flora, but these are the best representatives of the genus. They all require green-house treatment, and should be grown in light loam and leaf-mould, and allowed a season of rest. They are propagated by offsets.

Pandanus. Screw Pine. From *pandang*, a word in the Malay language signifying conspicuous. *Linn. Dioecia-Monandria.* Nat. Ord. *Pandanaceæ*.

An extensive genus of exceedingly ornamental, dwarf-growing trees, common in the East Indian Islands. The leaves are imbricated, and embrace the stem, bearing some resemblance to those of the Pine-apple. They are from three to five feet long, and are placed in three spiral rows round the extremities of the branches. The most remarkable peculiarity of the Screw Pine is its singular method of propping itself in the soil, by means of aërial or adventitious roots, which are projected from the sides of the trunk at an angle suited for its mechanical support. This is a beautiful provision for the exi-

gencies of the plant, which acquires an enormous top-weight by the accumulation of its thick, fleshy leaves, and would lose its balance but for its power of throwing down new roots when they are required. The flowers of *P. odoratissimus* yield a most delightful fragrance, for which it is largely cultivated in Japan. *P. utilis*, which best deserves the name of Screw Pine, is the species most frequently met in our greenhouses, and is perhaps the most valuable of any plant used in decoration, as it withstands gas, dust, and ill usage generally better than almost any known plant. It is the most useful in its native country, the Mauritius, where it is not only common, but is cultivated for the sake of its leaves, which are extensively used in the manufacture of the bags or sacks in which sugar is exported. They are increased by seed, or may be propagated by cuttings, the former being the method by which a stock is usually obtained in this country. There has lately been introduced into the green-house two very ornamental kinds, *P. Javanicus variegata* and *P. Veitchii*, both with foliage striped green and white. As decorative plants they are exceedingly valuable, both for the green-house and parlor. These variegated kinds are yet scarce and high priced. They are increased by cuttings, which root rather slowly; the temperature in which they are propagated should not be less than 75°.

Pandanophyllum. Derivation of name obscure. *Linn. Triandria-Monogynia.* Nat. Ord. *Cyperaceæ.*

P. humile, the only described species, is a very ornamental plant, having, as its name would imply, very much the appearance of the *Pandanus*. It is a native of Java, and has glossy, deep green, arching leaves, which are furnished with two secondary ribs, giving the surface of the foliage a peculiar channeled appearance. The end of the leaf, which is from six to nine feet long, and about two inches broad, is suddenly narrowed down into a long thread-like termination. This is the only species under cultivation, though five or six others have been found.

Panic Grass. See *Panicum.*

Panicum. Panic Grass. From *panicula*, a panicle; form of flowering. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

An extensive genus of grasses, mostly used as fodder plants. *P. Germanicum* is the well-known Hungarian Grass. *P. plicatum variegatum* is a beautiful species for green-house culture, suitable for baskets and vases. It is propagated freely by cuttings, and will grow in almost any position given it.

Pansy. *Viola tricolor.* The almost innumerable varieties of Pansies, embracing every color, from white to black, maroon, yellow, purple, blue, self-colored, and those with the most delicate markings, as well as the bold and showy faces of others, are all hybrids between the annual species, *V. tricolor*, a weed in English fields and gardens, and the perennial kinds, *V. altaica*, from Tartary, *V. amœna*, from Scotland, and *V. grandiflora*, a native of Switzerland, *V. lutea*, of Great Britain, *V. rathomagensis*, of France, and *V. bicolor*, of this country. The first attention paid to the cultivation of the Pansy, and that which resulted in making it a florist's flower, was given by Mary Bennet, who had a little flower-garden in the grounds of her father, the Earl of Tankerville, at Walton-upon-Thames, England. She had prepared a little bed, in which were placed all the varieties of Pansies which she accidentally discovered in her father's

garden. Aided by the industry and zeal of the gardener, Mr. Richardson, several new varieties were raised from seed and transplanted to this little bed. From this small beginning in 1810 may be traced the rage which has since prevailed in the cultivation of this popular flower. The English, French, and German horticultural Societies offered great inducements to the florist, in the way of premiums, for the best flowers, and as the race was free to all, the interest awakened was of a most lively character; one which every gardener of importance helped to keep alive. The result has been, the Pansy of to-day in contrast with the little *V. pedata* and *V. tricolor*, the parents, so common in our woods and roadsides. Our seedsmen and florists have been so much absorbed in watching the race for supremacy in the production of seed of this flower, that they did not stop to consider whether we could compete, and were only anxious to know which country had merited the honor, in order to send to her for our supply. Our success with other things encouraged us to try this, and the first trial was sufficient to assure us what we have since proven, viz., that the very best Pansies grown in this country were from seed of our own growing. Pansies require to be grown in a rich, moist loam, and protected, as far as possible, from the mid-day sun, and from winds, and during the warmer summer weather should not be allowed to get dry. In England special varieties of Pansies are grown from cuttings for many years by name. In the climate of the United States this plan is hardly practicable, even if desirable, as the ravages of the Red Spider during the summer months on this plant virtually destroy it, and cause it to be treated always as a plant never to be carried over the second season after flowering. For this reason it is here raised only from seed. This is usually first sown in August, which gives plants large enough to be pricked away in cold frames during winter. Such plants give a profuse and continuous bloom from March to June, or, if sown earlier than August—say July 1st—they will bloom from October throughout the entire winter and spring months, if grown in a temperature averaging 45° at night. For succession, for late spring and summer flowering, we find the best date to sow is the first week in January, and if carefully handled, by growing in a low temperature, (average not to exceed 50° at night,) they will begin to flower in April, and will continue to flower longer than those sown in August, which get exhausted by June, while the January crop flowers right through the hottest summer months. A number of years ago a fine collection of Double Pansies originated with us, but we failed to perpetuate them successfully by cuttings, and they were ultimately lost; but they had no merit except novelty, as they were far inferior in beauty to the single kinds.

Papaver. Poppy. From *papa*, pap, or thick milk; the juice of the poppy was formerly used in children's food to make them sleep. *Linn. Polyandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

An extensive genus of hardy annuals and herbaceous perennials. All the poppies are exceedingly showy and strong-growing plants. The flowers are quite transient, many dropping the day they expand. The annuals, being hardy, only require to be sown where they are to grow, as early in the spring as convenient. The annuals are natives of Europe and Asia. *P Orientalis* is a herbaceous perennial, native of the

south of Europe. Its several varieties are the most showy and ornamental of the genus. The flowers are often six inches in diameter, of brilliant scarlet, with a dark purple blotch at the base of each petal. *P. somniferum* furnishes the Opium of commerce. *P. Orientalis* was introduced from Armenia into England in 1714.

Papaw Tree. See *Asimina.*

Paper Mulberry. See *Broussonetia papyrifera.*

Paper Narcissus. (See *Narcissus papyraceus.*) This, like the Roman Hyacinth, Lily of the Valley, and other bulbs, is largely forced for cut flowers in all the principal cities of the United States. The manner of doing this is exactly like that practiced with the Roman Hyacinth, which see under *Hyacinth.*

Paper Reed. See *Papyrus.*

Paphinia. From *Paphia*, a surname of Venus. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

The only species known, *P. cristata*, was formerly included in the genus Maxillaria, but on a revision of that genus was separated by Dr. Lindley as above. It is a splendid plant, bearing richly-colored flowers, and is rather difficult to cultivate. The best manner of managing it is to pot it in a mixture of rotten wood and sphagnum moss, elevating it considerably above the rim of the pot, allowing it to stand in the warmest part of the hot-house, and being careful to avoid over-watering at any time. It delights in a high, moist temperature while growing, but should be kept nearly dry when at rest. The young shoots which spring from the base of the pseudo-bulbs are very impatient of stagnated moisture, and should therefore be kept clear of the surrounding mould.

Pappoose Root. The popular name of *Caulophyllum.*

Papyrus. From the Syrian *babeer*, pronounced *papeer*, whence the Egyptian word *papyrus*, paper. *Linn. Triandria-Monogynia.* Nat. Ord. *Cyperaceæ.*

A small species of aquatic plants, mostly inhabitants of tropical countries. *P. antiquorum*, the Paper Reed, is the plant which yielded the substance used as paper by the ancient Egyptians. The underground root-stalks spread horizontally under the mud where the plant grows, continuing to throw up stems as they creep along. These stems are from eight to ten feet high, a portion of them being above the water. The paper was made from thin slices, cut vertically from the apex to the base of the stem, between its surface and center. The slices were placed side by side, according to the size required, and then, after being watered and beaten with a wooden instrument until smooth, were pressed and dried in the sun. The stems were likewise used for ornamenting the Egyptian temples and crowning the statues of their gods. This species has been introduced into the green-house. Propagated by seeds or by division.

Papyrus Plant. See *Papyrus.*

Pardanthus. Blackberry Lily. From *pardos*, a leopard, and *anthos*, a flower; referring to the spotted flowers. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A handsome genus of hardy herbaceous plants, with orange-colored flowers, spotted with purple. The plants have branching flower stems, and continue to produce their lily-like flowers for several weeks. The seed-pods have the appearance of a Blackberry, whence the common name. The seeds will not drop for a long

time after the branches have been cut. When dried they are useful to mix with dried grasses, in arranging dried bouquets. They are native of China and Nepal. Propagated by seed or from cuttings. *P. Chinensis* has escaped from the garden into waste places on Long Island and southward.

Paritium. From *pariti*, the Malabar name of one of the species. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

P. elatum, the only species of this genus, is an evergreen tree found only in Cuba and Jamaica, where it is called Mountain Mahoe. It affords the beautiful lace-like inner bark called Cuba Bast, formerly only used for tying around bundles of Havana cigars, but now extensively used by nurserymen and gardeners for tying up trees and plants, more particularly in budding. It is not so valuable, however, for this purpose as the more recently introduced tying material known aa *Raffia.* See *Raphia.*

Parkinsonia. Named in honor of *John Parkinson*, author of "Theatrum Botanicum," published in 1629. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

An ornamental spiny shrub, common to Lower California and Mexico. It is grown in the West Indies for a hedge plant, and called Jerusalem Thorn.

Parnassia. Grass of Parnassus. Named after Mount Parnassus, where they were fabulously said to have first sprung. *Linn. Pentandria-Tetragynia.* Nat. Ord. *Saxifragaceæ.*

A genus of swampy, herbaceous perennials. Several of the species are common throughout the United States in marshy places. *P. palustris*, Grass of Parnassus, is the most beautiful of the species. It bears from the root several bright green, smooth, roundish leaves, heart-shaped at the base, among which rises to the height of about a foot a simple angular stem, terminating with a single large flower of a creamy white color delicately veined with green. This species is common on the shores of Lake Superior and northward, having been naturalized from Europe.

Parsley. *Apium petroselinum.* This well-known seasoning herb is a hardy biennial, a native of Sardinia, whence it was introduced into England in 1548. Its uses for culinary purposes, such as sauces, soups, and in garnishing various dishes, is becoming very general, and several varieties of it are offered by seedsmen. Among the ancient Greeks and Romans, Parsley always formed a part of their festive garlands, on account of retaining its color so long; and Pliny states that, in his time, there was not a salad or sauce presented at the table without it. The ancients supposed it absorbed the inebriating fumes of wine, and by that means prevented intoxication. Of the several varieties, the double curled-leaved is preferred for use, as being more ornamental than the common sort, of which it is nothing more than a variety, obtained and continued by careful selection. We have ourselves gathered, for botanical specimens, plants of Parsley from the ruined walls of Craigmuller and Crichton Castles, near Edinburgh, evidently the original species, as the leaves were perfectly plain, having no trace of the curl that makes it now so attractive for garnishing, showing that the warrior lords of these ancient battlements had not troubled themselves to make any advance in the ornamental qualities of this vegetable. Parsley is now grown in immense quan-

tities for spring and winter use, usually in cold frames, where it is sown in February or March, at the time the Lettuce is planted. It is sown between the rows of Lettuce, which is planted six inches apart. As the seed is slow to germinate, and grows slowly at that season of the year, the Lettuce crop is cut off before the Parsley gets large enough to be injured. It develops so as to cover the ground usually about June 1st, and is then cut off and marketed. It soon starts to grow, but is usually of little value until the late fall months. To get a late fall crop, it is cut off and thrown away by about September 15th, which gives a full and heavy crop of leaves by November. It is then covered with sashes, which are raised up for ventilation in mild weather; and thus retarded, a full crop is easily obtained for the holidays, when it is in its greatest demand. Another plan is to sow Parsley in shallow boxes, say four inches deep, made of such width and length as will fit in under the front bench of the green-house stage; far enough under to get a fair proportion of light, say from fifteen to twenty inches. In this position it will grow finely, and, with a liberal use of liquid manure, can be cut four or five times during the winter in any green-house averaging 65°. For this purpose the seed can be sown in the boxes as late as August.

Parsnip. *Pastinaca sativa.* The common garden Parsnip is a hardy biennial, a native of Great Britain and the south of Europe. It has also become naturalized to a considerable extent in the United States. The leaves of the wild kind are hairy and dark green; in the cultivated Parsnip, smooth, and of a light, yellowish green. The Parsnip has long been cultivated as an esculent root. According to Pliny, they were held in such repute by the Emperor Tiberius that he had them annually brought to Rome from the banks of the Rhine, where they were then successfully cultivated. A deep, rich, loamy soil, free from stones, is requisite for the favorable growth of the Parsnip; but when grown upon poor land, it loses much of the rank flavor which it acquires if cultivated in rich soils; and though not nearly so abundant, is far more sweet and agreeable. Parsnip seed is almost useless at two years old, and fresh seed is even slow of germination, and is one of the seeds which should always be trodden in with the feet or firmly rolled after sowing. Sow in drills three inches deep and twelve inches apart. In England the roots are used to make a domestic wine.

Partridge Berry. See *Gaultheria* and *Mitchella.*

Partridge Pea. See *Cassia.*

Pasque Flower. See *Anemone pulsatilla.*

Passiflora. Passion Flower. From *passio*, suffering, and *flos*, a flower; referring to the filaments, or rays, and other parts, being likened to the circumstances of Christ's crucifixion. *Linn. Monadelphia-Pentandria.* Nat. Ord. *Passifloraceæ.*

An extensive genus of hardy, half-hardy, and green-house climbers, mostly natives of tropical America, a few only being indigenous to Asia. The name was applied from the resemblance afforded by the parts of the plant to the instruments of our Lord's Passion and its attendant circumstances: thus the three nails—two for the hands and one for the feet—are represented by the stigmas; the five anthers indicate the five wounds; the rays of glory, or, as some say, the crown of thorns, are represented by the rays of the "corona;" the ten parts of the perianth represent the Apostles, two of them absent, (Peter, who denied, and Judas, who betrayed our Lord;) and the wicked hands of His persecutors are seen in the digitate leaves of the plant, and the scourges in the tendrils. Had this genus been named by modern scientists, it is probable their imagination would have taken a somewhat different direction. All the Passion Flowers are handsome, fast-growing, and free-flowering plants. *P. incarnata* is regarded as hardy in this latitude, at least it is with but slight protection, notwithstanding it is a South American species. For green-house ornaments none are superior, if equal, to *P. racemosa*, which is a native of Martinique. Several of the species produce edible fruits, some of them nearly as large as a Nutmeg-melon, and are greatly esteemed in their native countries. It is rather a rare thing for them to ripen fruit in the green-house. All the species are rapidly increased by cuttings of the roots or young shoots, except *P. princeps*, which roots feebly from cuttings, and does better grafted on any of the free-rooting sorts.

Pastinaca. Parsnip. From *pastinum*, a dibble; referring to the shape of the root. *Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

See *Parsnip*, the only cultivated species.

Patersonia. Named after *Col. William Paterson*, an excellent botanist. *Linn. Monadelphia-Triandria.* Nat. Ord. *Iridaceæ.*

A small genus of green-house herbaceous perennials from New Holland, with purple, Iris-like flowers, very showy, but of so short duration that the plant is not worth cultivating.

Paullinia. Named after *S. Paulli*, a Danish botanist. *Linn. Octandria-Trigynia.* Nat. Ord. *Sapindaceæ.*

An extensive genus of South American evergreen climbers, not particularly interesting for its flowers, but for the seeds of some of the species. The seeds of *P. sorbilis* is the Guarana of Brazil, of which the "Treasury of Botany" says: "The Guarana is extensively used in Brazil, Gautemala, Costa Rica, and other parts of South America, as a nervous stimulant and restorative. The pounded seeds constitute Guarana. It is used both as a remedy for various diseases, and also as a material for making a most refreshing beverage. Not only is the active principle of Guarana identical with Theine, but, as far as is known, no other substance yields it so abundantly, the amount being 5.07 per cent., as against good Black Tea, which yields 2.13, and Coffee from .08 to 1.00. The mode of using the Guarana is curious and interesting. It is carried in the pocket of almost every traveler, and with it the palate-bone or scale of a large fish, the rough surfaces of which form a rasp, upon which the Guarana is grated; and a few of the grains of the powder so formed are added to water, and drank as a substitute for Tea. The effect is very agreeable."

Paulownia. Named after the hereditary princess of the Netherlands, daughter of the Emperor of Russia. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

P. imperialis comprises this genus. It is a splendid hardy tree, both for foliage and flowers. In habit and general appearance it resembles the Catalpa, though less hardy. The young shoots are liable to be killed by frost in this latitude, but if protected for one winter, they will not require further attention, and its rapid growth after will well repay for that little trouble with a beautiful flowering shade tree. The

flowers are blue when first expanded, gradually turning to bluish lilac, about two inches in length, and produced in terminal panicles. They resemble the Gloxinia. The young plants are produced from root cuttings. It is a native of Japan. The branches become very brittle with age, and are easily broken by strong winds; and this has been a great objection to its use as an ornamental tree for the lawn, for which it is otherwise admirably suited. Introduced in 1840.

Pavetta. The name of one of the species in Malabar. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of green-house, white-flowered evergreens, allied to the *Ixora*, and requiring the same treatment. *P. borbonica*, a handsome species, is the one chiefly grown in our green-houses.

Pavonia. Named after *Josef Pavon, M.D.*, a Spanish botanist. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Malvaceæ.*

A small genus of low-growing shrubs and herbaceous perennials, natives of South America. They are allied to the Mallow, and have showy scarlet flowers. But one or two of the species are considered worth cultivating.

Pea. *Pisum sativum.* The varieties of the common Pea are numerous, and differ widely, some not growing more than one foot high, others growing ten to twelve. The difference in the seed contrasts as strangely, some being small, hard, and nearly tasteless, while others are large, rich, and luscious. The history of the Pea, like many of our most familiar garden vegetables, and even its native country, are involved in obscurity. It is generally supposed to be a native of the south of Europe, and to have been introduced into English gardens at a very early period. It is recorded in English history, that when the English forces were besieging a castle in Lothian, in the year 1299, their supply of provisions was exhausted, and their only resource was in the Pease and Beans of the surrounding fields. This circumstance would warrant the belief that the Pea was one of the staple articles of produce for human food. The more delicate kinds, however, do not appear to have been cultivated until a much later period. Mention is made of Pease being brought from Holland in the time of Queen Elizabeth, that were "fit dainties for ladies, they came so far and cost so dear." In the reign of Henry VIII., too, the Pea appears to have been somewhat of a rarity, as in the privy purse expenses of that king is an entry: "Paied to a man in rewarde for bringing pescodds to the king's grace, iiijs. viiid." The varieties and sub-varieties of this vegetable are almost innumerable, and are being constantly brought forward. That there has been a steady improvement in the quality of the Pea, every one that has given its cultivation the least attention must admit. That we are indebted to the English gardeners and amateurs for these improvements, must also be admitted. Our own seedsmen are beginning to realize the fact, that it is discreditable to themselves and their country to be outdone, even in Pease, and have exhibited some new varieties of superior merit. Pease for seeds are now grown largely in New York State and Canada. Previously they were nearly all imported.

Peach. *Persica vulgaris.* Persia is credited with being the native country of the Peach, and to have disseminated it largely. Columella says the Peach, when first brought into the Roman

empire from Persia, was poisonous, an opinion that has been questioned by other writers. It was early introduced into Greece, but at what period is uncertain. The Romans brought it direct from Persia during the reign of the Emperor Claudius. It was first mentioned by Columella, and afterward described by Pliny. From the best information we can obtain, the natural fruit, or wild Peach, was much inferior to the first introduced into the United States in 1680. When, where, or by whom improvements were made, is not even a matter of conjecture. What is positively known of the Peach at the present day is, that the United States and China produce the finest in the world. English gardeners, on coming to the United States, are at a loss to understand, that while in latitudes here where the thermometer falls 15° below zero, orchards of Peach trees stand unprotected in the open field, in England, where the thermometer rarely reaches zero, the Peach must have the protection of a brick wall, or it fails to prove hardy. The reason is, that our hotter, drier summer and fall months better ripen the young shoots than the colder and moister climate of Britain.

Peacock Iris. See *Vieusseuxia.* In the catalogues it is commonly called *Iris pavonia*, which is a synonym

Peanut. See *Arachis.*

Pearl Millet. *Penicillaria spicata.* This fodder plant has been largely grown during the past few years, and promises to be most valuable for that purpose, particularly in the Southern States. It is a tender plant; that is, being of tropical origin, it will not grow until the soil and atmosphere are in the condition to grow Corn, Tomatoes, Melons, or such plants as require a high temperature for growth. Like all plants grown for fodder, the richer the soil the greater the product. We quote from our published article on the subject in the "American Agriculturist," November, 1878, the locality of the experiment being on our grounds in Jersey City, N. J.: "Pearl Millet has been cultivated for some years as a forage plant in some of the Southern States, as 'African Cane,' 'Egyptian Millet,' Japan Millet,' and in some places as 'Horse Millet,' and 'Cat-tail Millet.' But little was known of it at the North before last year, and then only in such small quantities as to hardly allow of a fair trial. From what we saw of it in 1877, we determined to give it a thorough trial this season. A piece of good, strong, loamy ground was prepared as if for a Beet or Turnip crop, by manuring with stable manure at the rate of ten tons to the acre, plowing ten inches deep, and thoroughly harrowing. The Millet was then sown in drills eighteen inches apart, at the rate of eight quarts to the acre. We sowed on the 15th of May, about the date we sow corn; and in twelve days the plants were up so that a cultivator could be run between the rows, after which no further culture was necessary, for the growth became so rapid and luxuriant as to crowd down every weed that attempted to get a foothold. The first cutting was made July 1st, forty-five days after sowing. It was then seven feet high, covering the whole ground, and the crop, cut three inches above the ground, weighed, *green*, at the rate of thirty tons per acre; this, when *dried*, gave six and a half tons per acre, as hay. After cutting, a second growth started, and was cut August 15th, forty-five days from the time of the first cutting.

Its height was nine feet. It weighed this time at the rate of fifty-five tons to the acre, *green*, and eight tons dried. The *third* crop started as rapidly as the second, but the cool September nights lessened its tropical luxuriance, so that this crop, which was cut on October 1st, only weighed ten tons green, and one and a half tons dried. The growth was simply enormous, thus: First crop in forty-five days gave thirty tons green, or six and a half tons dry; second crop in forty-five days, gave fifty-five tons green, or eight tons dry; third crop in forty-five days, gave ten tons green, or one and a half tons dry; the aggregate weight being ninety-five tons of green fodder in one hundred and thirty-five days from the date of sowing, and sixteen tons when dried to hay. This exceeds the Clover meadows of Mid-Lothian, which, when irrigated by the sewage from the City of Edinburgh, and cut every four weeks, gave an aggregate of seventy-five tons of green Clover per acre. There is little doubt that Pearl Millet is equally as nutritious as Corn fodder, which it resembles even more than it does any of the other Millets. We found that all our horses and cattle ate it greedily, whether green or dry. If sowing in drills is not practicable, it may be sown broadcast, using double the quantity of seed, say sixteen quarts per acre. The ground should be smoothed by the harrow, and again lightly harrowed after sowing: if rolled after harrowing, all the better. I know of no farm crop that will better repay high manuring, but so great is its luxuriance, that it will produce a better crop without manure than any other plant I know of. In those parts of the Southern States where hay cannot be raised, this is a substitute of the easiest culture; and being of tropical origin, it will luxuriate in their long hot summers. Even though our Northern seasons may be too short to mature the seeds, our experiments in New Jersey this summer show what abundant crops may be expected if similar conditions are secured. Pearl Millet as a fodder plant presents a new feature in our agriculture, and I feel sure that within ten years we shall wonder how we ever got on without it. As we have had many inquiries as to the best manner of drying Pearl Millet for 'Hay,' we would state that our crop was sown in a solid block, so that when cut it had to be removed from the land where it grew, and tied in sheaves, and hung up on an extemporized rail fence. This plan, of course, would not answer when grown on a large scale, as the crop is so enormous that such an expedient for drying would be too expensive both for labor and rails, and as it is too heavy and succulent to be dried, like Timothy and Clover, on the ground where it is cut, it must be removed, for to attempt to dry it where it grows would destroy the second crop. Circumstances, of course, must in a great measure be the guide, but we would suggest that, when grown for the purpose of being dried, it be sown in beds, say twelve feet wide, with alleys six feet between, where it may be dried; this, of course, would be a loss of one-third of the land for the first crop, but it would be little or no loss of crop in the second, for the Millet would spread so as to fill up all the six feet of alley."

Pear. *Pyrus communis.* The Pear, like the Apple, is indigenous to most parts of Europe. Historically speaking, it is not so ancient as the Apple. At what period it became ameliorated, or removed from its wild state, is unknown. In regard to its hardiness and longevity, it is greatly superior to the Apple or any other of our fruits. There are trees existing, and in bearing condition, over three hundred years old. The Romans cultivated thirty-six varieties in the days of Pliny, and Parkinson, in his Herbal, (1629,) speaks of sixty-four sorts in the London nurseries. The history of the cultivated Pear has never been written. It was at an early period common in Syria, Egypt, and Greece; whence it was imported into Italy, France, Germany, and Great Britain. Pear culture in France has been carried on to a most wonderful extent, thirty-six hundred varieties having been offered from one nursery. The Pear, though not indigenous to the United States, grows here to the greatest perfection, both as regards quality and quantity. The leading horticulturists of the country having made a specialty of its cultivation, aided by congenial soil and climate, their efforts for the production of perfect fruit have been happily rewarded. The Seckel, the recognized standard of perfection wherever the Pear is grown, is of American origin, as are many other kinds of the best quality.

Pecan-Nut. See *Carya.*

Pedicularis. From *pediculus*, a louse; the supposed effect on sheep eating it. *Linn. Didynamia-Digynia.* Nat. Ord. *Scrophulariaceæ.*

A genus of plants popularly known as Louseworts. *P. sylvatica* and *P. palustris*, indigenous to Great Britain, were formerly supposed to produce in sheep eating them the disease which gave name to the genus; but there is no good reason for such a belief. Some of the species are beautiful little plants, with very regular, finely cut leaves. They are propagated by seeds.

Pedilanthus. From *pedilon*, a slipper, and *anthos*, a flower. *Linn. Dodecandria-Trigynia.* Nat. Ord. *Euphorbiaceæ.*

A small genus of curious plants, resembling in habit and general appearance the *Euphorbia*, to which genus they may be referred for cultivation.

Pelargonium. Stork's-bill. From *pelargos*, a stork; referring to the beak-like formation of the seed-pod. *Linn. Monadelphia-Heptandria.* Nat. Ord. *Geraniaceæ.*

A very extensive genus of green-house evergreen shrubs, and a limited number of biennials and annuals. They are mostly natives of the Cape of Good Hope; a few occur in Australia, one in the Canary Islands, and one in Asia Minor. The *scarlet* kinds are popularly called *Geraniums*, though very different from the genus of that name, when viewed in a botanical sense. The greater number of kinds cultivated in the green-house and garden are hybrids, which are produced with great facility in this genus. The great number of varieties already produced, embracing a great range of form and color, is truly astonishing, and every year adds to the number new varieties in some respects superior to any before introduced. The improvement in the foliage even has been almost as marked as in the flower. We have now a sufficient number of varieties with ornamental foliage to constitute a distinctive feature in the green-house, and which are useful to the florist in making up his bouquets, baskets, and ornamental designs. All this is due to the untiring zeal of the florist. We cannot follow up the history of the introduction of these choice hybrids, but must be content with giving a brief account of the species to which the various classes belong. All the spe-

cies noted are natives of the Cape of Good Hope, unless otherwise mentioned. The Fancy or Show Pelargoniums, that are strictly greenhouse varieties, and unsuitable for the border, are descendants of *P. grandiflorum*, introduced in 1794. One of the hybrids was called "Lady Washington," which gave the whole class the popular name, "Lady Washington Geraniums." Some divisions of this class also have the distinctive appellation of French Pelargoniums, probably because they had their origin with the French hybridists. As specimen plants, for greenhouse or conservatory decoration, these have decided merit. There are few cultivated plants that make a more beautiful display, when they receive the care and attention they need. With this adaptation their usefulness ends. *P. inquinans*, Scarlet Pelargonium, is one of the parents of that large and important class now known as Bedding, Scarlet, or Zonal Geraniums, and formerly very generally called Fish and Horseshoe Geraniums, and of which we now have an immense variety of double and single, embracing every shade of scarlet, crimson, rose, carmine, violet, white, etc. This species has a splendid habit, being dwarf and compact; the flowers are intense scarlet, of good form and substance; it has large reniform, indistinctly zoned leaves, soft to the touch, and exhaling, when rubbed, an aromatic odor, which is unpleasant to most persons. *P. zonale*, Zonal Geranium, or Horseshoe Geranium, so-called from a dark, discolored zone on the surface of the leaf, is a smaller species than the preceding, and has the leaves more strongly marked. The petals of the flower are narrower, and of a deep carmine color. A variety of this, *P. marginatum*, is the well-known Silver-leaved Geranium. All the "Tricolors," such as *Mrs. Pollock*, *Sunset*, *Golden Tricolor*, etc., have originated from the above few species. It must not be supposed that all these beautiful colors, both in foliage and flower, have been produced hastily, or that they are in the true sense hybrids. Persistent cross fertilization of the many varieties, that has been carried on for the last thirty years, has given us the rare sorts enumerated in florists' catalogues. We think it is not to be doubted, however, that some of the "Tricolors" are simply "Sports." *P. peltatum* is the Ivy-leaved Geranium. Of this species there are two varieties that were introduced in 1701, and from these have sprung several beautiful sorts, which grow rapidly and flower freely. From their graceful, trailing habit, they are useful for window gardening and rustic work. Many of the Ivy-leaved have handsome double flowers. Of the species, besides those noted above, we will briefly mention *P. echinatum*, introduced into England in 1797, but mostly lost sight of until recently, except in collections of old plants. It is, indeed, an entirely distinct species, and one of the best for general cultivation for cut flowers. The foliage is covered with a white, silvery down; the lower petals of the flowers are pure white, and the upper ones marked or blotched with dark purple or maroon. In their habitat, several variations in color appear, but are all of the same general character. *P. capitatum* is the popular Rose Geranium, which was introduced in 1690. *P. quercifolium* is the larger Oak-leaved Geranium, introduced in 1774. *P. graveolens* is the Lemon-scented Geranium; *P. vitifolium* is the Balm-scented Geranium, receiving its specific name from the resemblance of its leaves to those of

the Vine; *P. fragrans* is the Nutmeg-scented Geranium, introduced in 1731; *P. tomentosum* is the Pennyroyal Geranium; *P. gratum* is the Citron-scented Geranium; *P. odorata* is the Apple-scented Geranium. Between some of the above species hybrids have been produced, but we cannot trace them with any degree of confidence, and therefore make no mention of them.

Pellitory of Spain. See *Anthemis*.

Peltandra. From *pelte*, a buckler, and *aner*, a man. *Linn. Monœcia-Polyandria.* Nat. Ord. *Araceæ*.

P. Virginica, formerly called *Arum Virginicum*, is a common aquatic plant, in shallow waters, from New York southward.

Penicillaria. From *penicillus*, a pencil; in allusion to the spikes. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ*.

A small genus of grasses, of which *P. spicata* is the well-known *Pearl Millet*, which see.

Pennyroyal. See *Mentha Pulegium*.

Pennyroyal Geranium. See *Pelargonium*.

Pentas. From *pente*, five; referring to the number of petals and stamens. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ*.

The only species known, *P. carnea*, is a very handsome hot-house plant, with delicate flesh-colored flowers, copiously produced in dense corymbs or cymes. It is valuable not only for the richness of its flowers, but also for the lengthened period and ease with which they are produced; and although it requires a hot-house to flower freely in winter, yet it may be kept in a green-house, and will then bloom from April till the following October. Propagated by cuttings of young shoots in sandy soil in the hot-bed or green-house in spring; the young plants will bloom freely during the summer. Introduced from South Africa in 1842.

Pentlandia. Named after *J. B. Pentland*, an English consul-general in Peru. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ*.

A small genus of very showy green-house bulbous plants from Peru. *P. miniata*, the most beautiful of the species, bears a solitary lanciolate leaf, appearing before the flowers, which are borne on a solid scape supporting an umbel of about half a dozen drooping vermilion-colored flowers. They flower in early autumn, and should rest during winter. They may be kept in the same manner as the Amaryllis. Propagated by offsets. Introduced in 1836.

Pentstemon. From *pente*, five, and *stemon*, a stamen; there are four perfect stamens and one imperfect. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ*.

An extensive genus of hardy and half-hardy herbaceous plants. Several of the species are common from North Carolina to Florida. The more showy species, those usually cultivated, are natives of Texas, Oregon, Colorado, Rocky Mountains, etc., and Mexico. Those introduced into the garden are beautiful plants, growing from one to three feet high, with white, pink, scarlet, blue, or purple flowers, produced freely from April until October. Most of them grow well in a light loam. They should have as dry a situation as the garden affords, as they suffer more from wet than cold during winter. Several of the California species, of late introduction, are very difficult to winter over in the border; being found in a coarse, sandy soil, and their period of rest being the dry season, they seem little inclined to adapt themselves to our climate. The beauty and profusion of the flowers will, how-

ever, pay for the protection they may need against the elements. Many of the species will flower the first season from seed, if sown in the green-house or an early hot-bed, and once transplanted before being transferred to the open border.

Peperomia. From *piper*, pepper, and *omoios*, similar. *Linn. Dicœcia-Triandria.* Nat. Ord. *Piperaceæ.*

An extensive genus of green-house evergreen and herbaceous ornamental-leaved plants, abundant in Central and South America, the Sandwich Islands, Southern Africa, and the East Indies. The majority are small creeping plants with fleshy leaves, growing on trunks of trees, or on damp rocks; others are more erect, of a shrubby character, and are terrestrial in their habits. Several of the species have been introduced into the green-house for the sake of their foliage; prominent among them is *P. maculosa*, a dwarf-growing species, with inconspicuous flowers, but very beautiful foliage. This species is readily increased by leaf cuttings, treated in the same manner as *Begonia Rex*. It is a native of St. Domingo. First introduced in 1790. *P. resedæflora*, or Mignonette flowered, recently introduced, bears small, spire-like spikes of white flowers at the apex of pink stems, the lower portions of which are furnished with small velvety leaves. It is used for button-hole bouquets, and is suitable for florists' work generally. *P. prostrata*, introduced in 1880, has small round leaves. Well-grown specimens droop four to five feet, making a great acquisition to our basket or vase plants.

Pepper. See *Piper.*

Peppergrass. See *Lepidium.*

Pepperidge. See *Nyssa.*

Peppermint. *Mentha piperita.*

Pepper-root. See *Dentaria.*

Pepper, White, is *Piper nigrum* with the black husks removed.

Pepperwort. See *Lepidium.*

Pereskia. Barbadoes Gooseberry. Named after *Nicholas F. Pieresc*, a French patron of botany. The generic name is sometimes written *Pierescia. Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

This genus consists of about a dozen species, and is allied to the Cactus. Some are tree-like and have woody stems, but they are mostly shrubs with fleshy stems, flat leaves, and round branches armed with tufts of spines, and bearing terminal solitary or clustered flowers, generally on short stalks. *P. aculeata* is indigenous in the West Indies, where it is commonly known as the Barbadoes Gooseberry or Gooseberry Shrub. It grows about fifteen feet high, the stem armed with bundles of straight spines, and having trailing branches bearing oblong, elliptical leaves and clusters of beautiful white flowers, and yellow, eatable, and pleasant-tasted fruit, which is used in making preserves, in the same manner as the common garden Gooseberry is used. This species is an excellent subject to graft Epiphyllums, etc., on, and is much used for that purpose. *P. Bleo* is called Bleo by the natives of New Granada, where it is indigenous. It is a shrub growing eight or ten feet high, with rather soft, fleshy leaves, five or six inches long, of an elliptical form, sharp pointed at the top, and tapering to the base. It bears handsome rose-colored flowers, with ten petals in two series, the inner of which are the largest and deepest colored. The leaves are eaten as a salad in Panama. Propagated by cuttings.

Pergularia. From *pergula*, trellis-work; referring to its quick climbing growth. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

A small genus of green-house evergreen climbers, allied to *Stephanotis*. Some of the species are remarkable for their sweet-scented, greenish-white flowers. They are natives of the East Indies and Java, but are very little cultivated.

Perilla. Derivation of name unknown. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A small genus of hardy annuals, natives of China and the East Indies. *P. Nankinensis* has deep purple leaves, and at one time was much used as an ornamental border plant, but, from its somewhat weedy appearance and wonderful productiveness, it has been pretty generally discarded.

Periploca. From *periploke*, an intertwining; referring to the habit of the plant. *Linn. Pentandria-Digynia.* Nat Ord. *Asclepiadaceæ.*

A small genus of hardy deciduous and green-house evergreen twiners, inhabiting Southern Europe, Asia, and Africa. *P. Græca* is an ornamental species, and has long been known in the garden. It is very common in the hedge-rows of Southern Europe. It has purplish flowers, arranged in axillary clusters. The juice of this species is exceedingly poisonous, and is used in the East for destroying wolves. Propagated by layers or cuttings.

Peristeria. From *peristera*, a dove; in allusion to the dove-like appearance of the column. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of splendid terrestrial Orchids. The best known and most beautiful of the species is *P. elata*, a native of Panama, where it is known as *El Spirito Santo*, the *Holy Ghost Plant.* The reason of this name is obvious on looking at the flower; the central member exhibits a column, which, with its summit and the projecting gland of the pollen masses, together with the erect wings, bears a very striking resemblance to the figure of a dove; hence the English name of *Dove Flower.* It flower stem rises from the base of the pseudo-bulbs, and attains a height of from four to six feet, its upper portion, for about one-third of the length, being covered with nearly round, very sweet-scented flowers, each about an inch and a half across, and of a creamy white, with small lilac specks on the base of the lip. They should be grown in well-drained pots of light, rich, fibrous loam, with a liberal mixture of fine sand and broken charcoal. They succeed well in an ordinary green-house, but are impatient of much water, particularly when at rest. They flower during the summer months, and remain in bloom several weeks. Propagated by division. Introduced in 1826.

Peristrophe. Derivation of name not given. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A small genus of green-house herbaceous plants, natives of India, with small purple flowers, produced in winter, and continuing in full beauty for several weeks. *P. angustifolia variegata*, of recent introduction, is an ornamental plant, with foliage variegated with yellowish-white and green. It is a very useful plant in window gardening or rustic work. Propagated readily by cuttings.

Periwinkle. See *Vinca.*

Pernettya. Named after *Don Pernetty*, author of "A Voyage to the Falkland Islands." *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ.*

A genus of half-hardy evergreen, white-flow-

ering shrubs, natives of Mexico and Peru. They are not sufficiently hardy to endure our winters without protection, and have not merits that entitle them to a place in the green-house.

Persea. Alligator Pear. A name applied by Theophrastus to an Egyptian tree. *Linn. Enneandria-Monogynia.* Nat. Ord. *Lauraceæ.*

The Alligator Pear grows upon a tree about the size of the Apple. It is a native of the West Indies. The tree has oblong, veiny leaves, and yellowish-green flowers. The fruit, which is the size of a large Pear, is considered by the natives one of the most delicious in the world, though strangers do not at first relish it. They contain a large quantity of firm pulp, possessing a buttery or marrow-like taste, and are hence frequently called Vegetable Marrow or Midshipman's Butter. It is usually eaten with spice, lime-juice, or pepper and salt. The trees cannot be induced to grow, excepting in tropical or sub-tropical countries.

Persica. The Peach. From *Persia*, its supposed native place. *Linn. Icosandria-Monogynia.* Nat. Ord. *Drupaceæ.*

To this genus belong the well-known fruits, the *Nectarine* and the *Peach*, which see.

Persimmon. See *Diospyros Virginiana.*

Peruvian Bark. See *Cinchona.*

Peruvian Daffodil. See *Ismene calathina.*

Petrea. Linnæus dedicated this genus to Robert James, *Lord Petre*, a celebrated patron of botany, who died in 1742. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Verbenaceæ.*

A genus of twining shrubs or small trees, natives of Mexico and South America. Some of the species are very beautiful flowering climbers. The flowers are large, of a deep violet color, and produced in graceful racemes. They are increased by cuttings in spring. Introduced in 1834.

Petunia. From *Petun*, Brazilian name for tobacco, to which the Petunia is allied. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

A small genus of half-hardy herbaceous perennials, all natives of South America, and mostly confined to Brazil. Though coming from a tropical country, where they are strictly perennial, they may be grown as hardy annuals. In the whole range of what are called "bedding plants," there is not an individual that can be said to exceed in general usefulness the Petunia. They are of the easiest culture, seeding themselves when once planted, growing in any soil that will sustain plant life, and producing the most showy flowers in the greatest profusion. Few, if any, plants have come so rapidly into popular favor, or have been so much improved by hybridization and cultivation. Only a few years ago they were comparatively unknown, and now there is not a garden, either large or small, where they are not grown; nor are they confined to the garden, as the windows of the workshop and the humble tenement so cheerily testify. *P. nyctaginiflora*, the common White Petunia, was first introduced into England from Brazil in 1823. It was but little cultivated, and only in the green-houses as a perennial, until 1830. At this period, *P. violacea*, or *P. Phœnicia*, as it is sometimes called, was introduced from Buenos Ayres by a Mr. Tweedie, a botanical collector, who sent seeds of it to the Botanic Garden at Glasgow. It was soon found that it would propagate freely from seed, and in a short time it became widely disseminated. It was figured and

sent out first as *Salpiglossis integrifolia.* From these two species all our garden varieties have been produced. To Isaac Buchanan, of New York, belongs the credit of having first hybridized these species, the result being the magnificent blotched and striped varieties now so extensively cultivated. His first effort was crowned with the most complete success, the hybrids being as perfectly and distinctly marked as any since produced. These were for a number of years offered in seedsmen's catalogues as "Buchanan's Hybrids." Many other splendid sorts have been produced in this country, and among them the "Fringed Petunia," from which the Germans have succeeded in getting a double variety, finely fringed. Many double varieties are now sent out each season, claiming special merit. They are well adapted for green-house culture, but for massing or extended borders, the best marked single varieties are far superior, because they produce their flowers in greater abundance. Where a mass of any particular color is desired, it is better to strike cuttings of the favorite kinds in the fall. For the mixed border, the seeds may be sown where wanted to grow; or, if wanted to flower early, seed may be sown in the green-house or in a hot-bed, and transplanted into the border. If the soil is rich, the plants should be set three feet apart each way. A peculiarity of the blotched varieties, particularly among the double ones, is that, when propagated from cuttings for a few years, the tendency is to run back to the dark color, all white markings being obliterated. Plants from cuttings will flower from June until after they have had several degrees of frost.

Peyrousia. Named in honor of *La Peyrouse*, the French navigator. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A small genus of showy flowering bulbs. They are of blue, white, purple, or pink colors, and in general habit resemble the Ixia, and require the same treatment. They are also known as *Lapeyrousia* and *Oviedia.* They are increased by offsets. Introduced from the Cape of Good Hope in 1825.

Phaca. From *phago*, to eat; a name adopted by Dioscorides. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of hardy herbaceous perennials. They are showy plants, suitable for the front of shrubbery borders. Their flowers are of many shades of white, yellow, rose, or purple. The species are common throughout the States. They are classed with *Astragalus.*

Phacelia. From *phakelos*, a bundle; in reference to the disposition of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Hydrophyllaceæ.*

Very curious plants, which produce their flowers in one-sided fascicles, which unroll themselves slowly. The flowers are rather pretty in themselves, but are half hidden by their bracts and coarse-growing leaves. Some of the species are perennials, and others biennial or annual. The Californian species are annuals with blue flowers, but the South American kinds are biennials or perennials with pink flowers.

Phædranassa. From *phaidros*, gay, and *anassa*, queen. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of bulbs, natives of Peru and Quito. They are found at an elevation of 9,000 feet above the sea, growing among the rocks, where there is not, seemingly, sufficient earth to sustain vegetable life. They are handsome,

though not very showy plants. The flowers are about two inches long, in the form of a slender tube, of a light pea-green color, tipped with pink. The bulbs require a long season of rest after flowering, which is usually in winter. They are easily grown in a cool green-house with the most ordinary care. They are increased by offsets. Introduced in 1844.

Phaius. From *phaios*, shining; in allusion to the beauty of the original species. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

These are handsome, free-flowering Orchids, of easy management. They should be potted in leaf mould, sphagnum moss, and broken charcoal or potsherds. In winter, or when at rest, they should be kept in a low temperature, such as that of the green-house, and while there should be nearly dry. In early spring re-pot them, and place them in the hot-house, where they soon grow and ultimately flower. Plenty of pot room should be given to all the species. *P. Wallichii* is one of the finest. *P. albus* may be propagated by cuttings of the stems. The species are natives of China and the East Indies, and were first introduced in 1778. The well-known *Bletia Tankervilliæ* is now placed here by botanists under the name of *P. grandifolius*. See *Bletia.*

Phalænopsis. Indian Butterfly Plant. From *phalaina*, a moth, and *opsis*, like; in allusion to the appearance of the flowers, which bear a striking resemblance to that insect; whence the common name Indian Butterfly Plant. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

One of the most magnificent of the order. The flowers are borne from five to fifteen in number, on a half-pendent spike; they are nearly circular in outline, about two inches and a half in diameter, of a pure white, the central portion being marked with delicate streaks of crimson; the sepals and petals are thick and leathery, and, as the name implies, a fancied resemblance may be traced between the flowers of this plant and a large white moth. In culture the species requires a very high temperature; it should be grown in the hottest part of the hot-house, with an abundant supply of moisture, especially in the form of vapor, while in an active state; but at other times the quantity of each should be moderately reduced. In summer, when the plant is growing, the thermometer should range between 70° and 90°, when it will grow rapidly, and consequently flower in perfection. It may be regarded as a very liberal bloomer. The genus consists of several species, most of which are of recent introduction. They are all natives of the islands of the Indian Archipelago. First introduced in 1836.

Phalaris. Canary Grass. From *phalaros*, shining; referring to the shining seeds. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A small genus of Grasses, mostly natives of Central Asia. *P. Canariensis* produces the Canary Seed of commerce. Gardener's Garters is a beautiful variegated variety of this grass, known as *P. arundinacea picta*, very common in English gardens, and has been long introduced here. Propagated by division.

Phalocallis. From *phalos*, a cone, and *kallos*, beautiful; beautifully cone-crested. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

P. phumbea, the only known species, is a half-hardy Mexican bulb, producing singular lead-colored flowers, tinged with yellow in the center, about three inches across, lasting only a few hours.

They expand before sunrise and close before noon. This was formerly included in the genus *Cyphella*, but separated by Dean Herbert. It requires the same treatment and care as the *Tigridia.* It is increased by offsets. Introduced in 1837.

Pharbitis. One of the divisions of the genus *Ipomœa*, which see.

Phaseolus. Kidney Bean. From *phaselus*, a little boat; fancied resemblance of the pods. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

This genus contains a few ornamental plants, the remainder being agricultural or culinary vegetables. Among the latter is the well-known Kidney Bean. Of the former, *P. Caracalla* is the most remarkable, on account of its singularly twisted vexillum and keel, the appearance of which has induced the popular name, Snail Flower. It is a climber, and may be grown out of doors in summer and in the green-house in winter. It is propagated by cuttings and from seed. The seed should be sown in spring in the green-house, with a slight bottom heat, and afterward the plants may be placed in the borders of the house where they are to bloom, or they may be grown in pots. Its flowers are bluish lilac. They are valued by florists for their delicious fragrance and for their resemblance to Orchids. There are several other ornamental green-house kinds requiring the same treatment. *P. multiflorus* is the common Scarlet Runner of our gardens. It is a native of Mexico and South America. There is a variety with white flowers. *P. vulgaris* is our common Kidney Bean, the origin of which is very uncertain.

Philadelphus. Syringa or Mock Orange. An ancient name applied by Linnæus for no obvious reason. *Linn. Icosandria-Monogynia.* Nat. Ord. *Philadelphaceæ.*

A genus of native shrubs, common in shrubberies, the flowers of which smell like those of the Orange, and the leaves taste like Cucumbers. It is rather remarkable that one of the English names of these plants is Syringa; which is the botanical name of the Lilac, to which they have not the slightest affinity. There are many species, some of which have very large and handsome flowers, and some bear flowers without any fragrance. They are all quite hardy, and may be propagated by seeds, layers, cuttings, or division. The species are common in the mountains of Virginia and southward.

Philageria Veitchii. A recent hybrid between *Lapageria rosea* and *Philesia buxifolia*, raised by the Messrs. Veitch, of England. See *Philesia.*

Philesia. From *philesios*, lovely. *Linn. Hexandria-Monogynia.* Nat. Ord. *Smilaceæ.*

P. buxifolia is the only species of this genus. It is a dwarf shrub, native of the extreme southern part of South America, being found from Valdivia to the Straits of Magellan. It is an evergreen with small leaves, and large, bell-shaped, drooping flowers, of a beautiful bright red color. It is allied to *Lapageria rosea*, from the same region. Messrs. Veitch, of Chelsea, Eng., have succeeded in raising a hybrid between the two plants, which has been named *Philageria Veitchii.* It is proper to state that the plant is inferior, in point of beauty, to either parent. We do not know of its introduction into this country. It would do well out of doors in the Southern States, or in the green-house north.

Phillyrea. From *phyllon*, a leaf; literally, a leafy plant, the flowers being inconspicuous. *Linn. Diandria-Monogynia.* Nat. Ord. *Oleaceæ.*

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A genus of ornamental, compact-growing, hardy evergreen shrubs. The few known species inhabit the shores of the Mediterranean. The chief value of this shrub is its perfect hardiness, and its adaptation for sea-side planting.

Philodendron. From *phileo*, to love, and *dendron*, a tree; referring to the habit of the plants of this genus to overrun trees in the South American forests. *Linn. Monœcia-Triandria.* Nat. Ord. *Araceæ.*

A singular genus of tropical plants, with mostly scrambling stems, which attach themselves to the trunks of trees, whence the name of the genus. They are all green-house evergreen perennials, with large, irregular, singular leaves, and showy flowers, some of which are pure white, others white and bright rose. They are natives of South America. Propagated by cuttings of side shoots and from seeds. Introduced in 1835. See *Monstera.*

Phlebodium. From *phleps*, a vein. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of net-veined Ferns, separated from *Polypodium. P. aureum*, typical of the genus, is a bold, glaucous-tinted Fern, with strong rhizomes, which run upon the surface. It is a handsome species, and will grow luxuriantly in a cool green-house. It is increased by division or from spores. The species have long been under cultivation.

Phleum. Supposed to be the Greek name for *Typha. Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A small genus of grasses. *P. pratense* is the well-known Timothy, or Herds Grass, in New England; it is also known as Cat's-tail Grass.

Phlogacanthus. From *phlox*, a flame, and *akanthus*, the type of this family; in allusion to the long spike of yellow or flame-colored flowers. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A genus of East Indian green-house evergreen shrubs, allied to *Justicia*, and from which genus a few species have been separated. They are all ornamental winter-blooming plants, with bright orange or yellow flowers. They are increased in the same manner as the *Justicia*, and require the same general treatment.

Phlomis. Jerusalem Sage. From *phlogmos*, a flame; in reference to the down being used for wicks. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A genus of herbaceous perennial and shrubby plants, with large, coarse-growing, glaucous leaves, greatly resembling those of the common Sage, and yellow or purple flowers disposed in a whorl round the joints. All the species are propagated by layers or cuttings, or by root division. They are mostly natives of Southern Europe. *P. tuberosa* is occasionally met in some parts of the State of New York growing wild; it is, however, an escape from our gardens.

Phlox. From *phlox*, a flame; in reference to the brilliancy of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

This extensive and interesting genus is exclusively North American, and contains many of our most valuable hardy herbaceous perennials, and one invaluable hardy annual. What are commonly termed *Perennial Phloxes* are seedlings, varieties from *P. paniculata*, which is common from Pennsylvania to Illinois and southward. Of this species there are several varieties, all of the same general character, producing immense terminal clusters of white, pink, purple, and

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crimson flowers. From this species and from *P. maculata*, a lower growing species, common in the Middle and Western States, have originated the many rare and beautiful varieties that are now attracting such universal attention. The hybridizing of this class has chiefly been done by European florists; a pleasant and profitable work that should not have passed out of our own hands, and would not but for the too common error that plants, as well as all other commodities, to be truly valuable, must be stamped with a foreign seal. It is claimed by some of the foreign horticulturists that the finer hybrids are crosses between the annual and perennial species, and the brilliant color so characteristic of them gives some credence to the assertion. Many of the species have long been cultivated, and regarded as the most valuable plants for the border. A few of the more valuable are worthy of special mention. *P. subulata*, Moss Pink or Ground Pink. This is a beautiful dwarf-growing species, rarely exceeding six inches in height, and grows in dense tufts, producing its pink, purple, or white flowers, which usually have a dark center, in great profusion in early spring. This species is very common from New York to Michigan and southward. *P. reptans* or *stolonifera* is another dwarf species, of a rambling habit, with neat foliage and numerous clusters of bright crimson flowers. It is one of our most showy early spring flowering plants, blooming early in May. The flowers are nearly as large as the late, tall-growing species. *P. divaricata* produces bluish-lilac flowers from April to June, and grows about the same height as the former species. This species is found in moist, rocky woods in the Middle States, north and west. *P. pilosa* grows about one foot high, and produces its lovely pink flowers in May and June. *P. Drummondii*, the only annual species, is a native of Texas, where it was discovered in 1835 by Mr. Drummond, a botanical collector sent out by the Glasgow Botanical Society. The seeds of this were sent home, and soon after the discoverer fell a victim to the fever in Cuba, and died. For this reason Sir W. J. Hooker named the plant *Phlox Drummondii*, that it might "serve as a frequent memento of its unfortunate discoverer." There can be no stronger proof of the value and beauty of this species than the extent to which it is grown. Each year new varieties are added to the list, and, thus far, each year shows a marked improvement over the past, both in size and color of the flower, and in their extraordinary markings and variations. The varieties now include white, pink, rose, purple, and scarlet colors, and a near approach to yellow. Some of the scarlets have pure white eyes, and many of the others have the same distinctive marking. The only treatment required for this species is to sow the seed in early spring, where the plants are wanted to grow; and for perfection of flower the plants should be thinned out to one foot apart each way. They may also be started in the green-house or in a hot-bed, and pricked out in pots and boxes, and earlier flowers thus secured. The perennial species are increased by cuttings or by division of roots in spring. They should in no case be allowed to stand undivided more than three years, and they produce larger and finer flowers if separated every spring.

Phœnix. Date Palm. The Greek name of the Date. *Linn. Diœcia-Triandria.* Nat. Ord. *Palmaceæ.*

This genus, though not extensive, is one of the most interesting of the order. The species are chiefly confined to Northern Africa and tropical Asia. Some of the species are dwarf-growing, but they mostly attain the height of from fifty to sixty feet. "The Date Palm, *P. dactylifera*, is cultivated in immense quantities all over the northern parts of Africa, and more sparingly in Western Asia and Southern Europe; and in some of these countries its fruit, though only known by us as a preserved fruit, affords the principal food of a large proportion of the inhabitants, and likewise of the various domestic animals, dogs, horses, and camels being alike partial to it. The tree usually grows about sixty or eighty feet high, and lives to a great age, trees of from one to two hundred years old continuing to produce their annual crop of Dates. The fruit, however, is not the only valuable part of this widely dispersed tree; for, as with the Cocoanut tree, nearly every part is applied to some useful purpose. The huts of the poorer classes are entirely constructed of its leaves; the fiber surrounding the bases of their stalks is used for making ropes and coarse cloth, the stalks themselves for crates, baskets, brooms, walking sticks, etc., and the wood for building substantial houses; the heart of the young leaves is eaten as a vegetable; the sap affords an intoxicating beverage, though to obtain it the tree is destroyed; and even the hard and apparently useless pits or seeds are ground into food for camels." This tree is very interesting to botanists, because it was the first that drew their attention to the sexes of plants. It is a dicœcious tree, that is, the male flowers are on one plant and the female, or fruiting ones, on another. The male flowers are considerably larger than the female; and the latter, instead of stamens, have in the center the rudiments of the Dates, about the size of small Pease. The two distinct sexes of the Date tree appear to have been known from the remotest antiquity, as they are noticed by all the ancients who describe the tree. It is not a little remarkable that there is a difference in the fructification of the wild Date and the cultivated, though both are precisely the same species. Wild Dates impregnate themselves, but the cultivated ones do not without the assistance of art. Theophrastus and Pliny mention this fact; and in every plantation of Dates one part of the labor of the cultivator consists in collecting the flowers of the male Date, climbing to the top of the female with them, and dispersing the pollen on the germs of the Dates. So essential is this operation, that though the male and female trees are grown in the same plantation, the crop fails if it be not performed. These trees do not succeed well where the mean temperature falls below 80°; hence, they require the warmest of our hot-houses. Young plants may be grown from the seeds taken from the Dates sold in the fruit stores.

Phœnicophorum. From *Phœnix*, date, and *phoreo*, to bear. *Linn. Dicœcia-Triandria.* Nat. Ord. *Palmaceæ.*

A genus of rare and beautiful Palms, natives of the Seychelles Islands. *P. Seychellarum*, the only representative of the genus, was formerly called *Stevensonia grandiflora.* It is a stemless species, from whose base spring numerous leaves with copper-colored stalks studded with black spines. The blade of the leaf is wedge-shaped, and of a bronzy hue. The young leaves

are of a rich cinnamon-brown color. This Palm is beginning to be cultivated for decorative purposes, and is one of the handsomest known Palms. Young plants are obtained from seed.

Phœnocoma. From *phoinos*, bloody, and *kome*, hair; involucrum. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

P prolifera, the only known species, was formerly called *Helichrysum proliferum*, but formed into a separate genus from some slight difference in the central florets. It is a rather showy everlasting, with crimson flower heads, a native of the Cape of Good Hope. It is a green-house shrub, and may be grown from cuttings or seeds. Introduced in 1789.

Pholidota. Rattlesnake Orchid. From *pholis*, a scale, and *ous, (otos,)* an ear; flowers arranged like an ear of wheat, with scaly bracts, as the tail of the rattlesnake. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of East Indian epiphytal Orchids, of easy culture, mainly requiring to be grown on blocks or cork in a warm, moist house. They must have frequent waterings when growing. Flowers white, or white and brown, produced in imbricated and two-ranked drooping flower spikes. Propagated by division.

Phoradendron. See *Viscum.*

Phormium. Flax Lily, or New Zealand Flax. From *phormos*, a basket; use made of the plant in its native country. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

P. tenax, the only known species, is a native of New Zealand, where it is extensively used by the natives instead of Flax. The plant is handsome. It has stiff, sword-shaped leaves, and the flowers are orange colored, produced on strong spikes, alternately branched, and growing from ten to fifteen feet above the leaves, making it an exceedingly handsome and curious plant for green-house culture. *P. tenax variegata*, more recently introduced, is a very beautiful variegated leaved variety, which makes a magnificent plant for lawn decoration, or for the green-house and conservatory. It requires a light rich soil. Propagated by division. Introduced in 1798.

Photinia. From *photeinos*, shining; in reference to the leaves. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Pomaceæ.*

A very beautiful evergreen shrub or low tree, formerly called *Cratægus glabra*, which is nearly hardy, but thrives best when trained against a wall in a sheltered situation. The plants are propagated sometimes by cuttings of the ripened wood, but more frequently by grafting or inarching on some of the hardy kinds of Cratægus. The few species that constitute this genus are natives of Northern India, China, and Japan, with one species from California.

Phragmites. Reed. From *phragmos*, a hedge; forming hedges. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

P. communis, the only species, is a tall-growing, reed-like plant, common in the swamps and marshes on the South Side of Long Island and in New Jersey, and extending to Florida. The plumes are gathered in great quantities in the fall, and used with ornamental grasses for dried bouquets and decorations.

Phycella. A diminutive of *phykos*, Red Alkanet; alluding to the color of the flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of half-hardy bulbous plants

from the mountain regions of Mexico and South America. The several species have the same general character, the flowers being red or scarlet, marked with yellow, produced in early summer. They should be planted as early in spring as possible, in light, well-drained soil. After flowering, and as soon as they show signs of ripening, take up and store in the same manner as Hyacinths. They may be increased by offsets. Introduced in 1825.

Phylica. From *phyllikos*, leafy; in allusion to the abundant evergreen foliage. *Linn. Pentandria-Monogynia.* Nat. Ord. *Rhamnaceæ.*

Pretty little heath-like plants, natives of the Cape of Good Hope, with narrow leaves, and little terminal heads of fragrant white flowers, which begin to appear in autumn, and continue during winter and early spring. They are generally grown in a green-house, and require the same treatment as the Cape Heaths.

Phyllanthus. From *phyllon*, a leaf, and *anthos*, a flower; the flowers are produced on the edges of the leaves. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Euphorbiaceæ.*

A large and very interesting genus of tropical plants. The species include low, creeping annuals, and moderate-sized trees. They are remarkable for the neatness of their foliage and general aspect. *P. latifolius* is frequently cultivated on account of the pretty and at the same time singular appearance of its leafless, leaf-like branches, covered over at the edges with multitudes of pink flowers. It requires to be grown in a warm green-house.

Phyllarthron. From *phyllon*, a leaf, and *arthros*, a joint; leaves supposed to be joined, or leaflet articulated on leaf-stalk. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Crescentiaceæ.*

A small genus of shrubs or small trees, confined to the islands of Eastern Africa. They are remarkable for their peculiar jointed leaves. The flowers are pink, and appear in terminal and axillary racemes. They produce a fruit much used in jellies. They require the same treatment as the *Bignonias*, to which they are allied.

Phyllocactus. From *phyllon*, a leaf, and *Cactus. Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

"Several species and varieties of this genus of *Cactaceæ* are cultivated in hot-houses and green-houses for the sake of their fine white or crimson flowers, which are among the largest and most showy of the order. Some confusion exists in their nomenclature, owing to many of the species having formerly been referred to the genera *Epiphyllum* and *Cereus*. They are, however, distinguished from the latter by their curious, flat, broad, leaf-like branches; and from the former by their flowers being produced from the notches or indentures along the edges of the branches instead of at the end, and having small, sepal-like segments scattered wide apart on the tube, and numerous long petals variously expanded, so as to form a rose-like, or a funnel, or salver-shaped corolla, with the stamens attached to the orifice of the tube, the outer ones being longer than the inner. The nine species described by botanists are found in Mexico, Central America, and Brazil. *P. Ackermanni*, a native of Mexico, has flowers measuring as much as seven inches across, and of a rich scarlet color, like those of some varieties of *Cereus speciosissimus*, with broad, very sharp-pointed, slightly waved petals. Its stems are rounded at the base, and bear little tufts of short bristles, and its flat branches are from two to two and a half inches broad, and waved or deeply dented along the margin. *P. anguliger* is a West Mexican species, and is remarkable for having its flat branches deeply and sharply lobed, so as to resemble pinnately cut leaves, the lobes almost forming right-angled triangles; its flowers, which are large and fragrant, have brownish petals, and pure white inner ones." *P. speciosus* has beautiful rose-colored flowers. The species are readily increased by cuttings, which should be allowed to dry a day or two after being taken off.

Phyllotænium. A genus of *Araceæ*, established on a New Grenadian species, formerly called *Xanthosma*. It resembles the *Caladium*, but differs in its persistent leaves, acrid, milky juice, and the absence of rudimentary organs.

Physalis. Ground Cherry, Strawberry Tomato. From *physa*, a bladder; alluding to the calyx. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

This genus is composed principally of weeds. One or two species have been introduced into the green-house, with, however, but little interest or profit. *P. Alkekengi* is the *Strawberry Tomato*, common in cultivated grounds and waste places, having become naturalized from Europe.

Physianthus. From *physa*, a bladder, and *anthos*, a flower; alluding to the corolla being inflated at the base. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

A small genus of green-house climbing plants, natives of Brazil and Buenos Ayres. *P. albens* bears immense quantities of pure white, fragrant flowers, in axillary clusters, very much like a single Tuberose, which are much used in the formation of bouquets during the summer months. It is well adapted for covering trellises, or for any situation where a climber is required, and succeeds best in the warmest situation. It has large and handsome seed-vessels, which look like oval gourds, and which, when opened, are found to contain the seeds, enveloped in a quantity of fine, silky substance, which looks like the cocoons of silk-worms after the fine silk has been spun off. They are rapid growers, sometimes growing twenty feet in a summer. They require the protection of the green-house during winter. A wonderful peculiarity of this plant is its power to trap insects. For this reason Professor George Thurber has well named it "The Cruel Plant," and describes the trap contrivance thus: "The anthers are so placed that their spreading cells form a series of notches in a ring around the pistil. The insect, in putting its proboscis down for the honey, must pass it into one of these notches, and in attempting to withdraw it, the end is sure to get caught in a notch, boot-jack fashion, as it were, and the more the insect pulls, the more its trunk is drawn towards the point of the notch." Thus caught, the insect starves to death; hence the well-deserved name of "Cruel Plant." Propagated by cuttings or by seeds. Introduced in 1830.

Physostegia. From *physa*, a bladder, and *stege*, a covering; alluding to the calyx. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A genus of hardy herbaceous perennials, natives of North and South America. The several species produce white, pink, purple, and red flowers, in terminal, leafless clusters. They are nearly allied to the *Dracocephalum*, and require the same treatment.

PHY

Physurus. From *physa*, a bladder, and *oura*, a tail. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of lovely little Orchids, both epiphytal and terrestrial. They are natives of South America. *P. pictus* is one of the most delicately-beautiful objects which the researches of modern botanists have furnished to our collections. Its leaves are a rich, tender green, reticulated with numberless silvery-looking veins, of the most exquisite markings, having the appearance of a net-work of silver on a ground of bright green velvet. It requires the same treatment as *Anæctochilus*, to which it is nearly allied.

Phytelephas. Vegetable Ivory Nut. From *phyton*, a plant, and *elephas*, ivory; buttons and toys are made from the hard albumen of the nuts. *Linn. Polygamia-Digynia.* Nat. Ord. *Palmaceæ.*

P. macrocarpa, the Ivory Plant of South America, is the representative of a curious genus closely allied to the Palms, and having their habit; but they differ from them in having an indefinite number of stamens, and on that account are regarded by some botanists as the type of a separate natural order, *Phytelephanteæ*. The separation, however, has not yet been made. There are two species, similar in all respects, except in the size of the fruit, and both inhabit the same locality. *P. macrocarpa*, the large-seeded species, is a native of the northern parts of South America, and was known to botanists long before the nuts had a commercial value. It inhabits damp localities, such as valleys and banks of rivers, and is found not only on the coast region, as at Darien, but also on mountains rising 3,000 feet above the level of the sea. It is generally found in detached groves, seldom intermixed with other trees. The trunk is always pulled down, partly by its own weight, and partly by its aërial roots, which it possesses in common with the Pandanus, to which it is allied. It thus forms a creeping stem, which is frequently twenty feet long, but is seldom higher than six feet. The top is crowned with from twelve to twenty leaves, from twelve to eighteen feet long. The male and female flowers are on separate trees, and the trunk of the male plant is always more erect and taller than that of the female. The flowers are produced in axillary clusters, and emit a powerful perfume. The fruit, a collection of six or seven drupes, forms clusters, which are as large as a man's head, at first erect, but ultimately hanging down when the weight increases. A plant bears at one time from six to eight of these heads, each weighing, when ripe, about twenty-five pounds. Each drupe contains from six to nine seeds or nuts. The seed at first contains a clear, insipid fluid, with which travelers allay their thirst; afterward this liquor becomes milky and sweet. When matured, it is almost as hard as ivory. These nuts are gathered in large quantities by the natives, and sold to traders, who are allowed on shore only sufficiently long to make their purchases, and are compelled to return to their vessels at night.

Phyteuma. Linnæus adopted this name from Dioscorides; meaning unknown. *Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

An extensive genus of hardy herbaceous plants, the majority of which are interesting aids in the embellishment of rock-work or similar places. They speedily extend themselves. They are mostly natives of the temperate parts of Europe and Asia, and have long been under cultivation. Propagated by division.

PIL

Phytolacca. Poke Weed. From *phyton*, a plant, and *lacca*, lac; the crimson color of the fruit. *Linn. Decandria-Decagynia.* Nat. Ord. *Phytolaccaceæ.*

P. decandria, our common Virginia Poke Weed, is the type of the genus. At home it is a rank weed. In Portugal it is said to be cultivated for the berries, the juice of which is used to color Port wine. The root has medicinal qualities. The young shoots in spring are often used by country people as a substitute for Asparagus.

Piassaba or Piacaba Fiber. See *Leopoldinia.*

Pickerel Weed. See *Pontederia.*

Picotee. One of the florist's varieties of *Dianthus Caryophyllus.* See *Dianthus.*

Pilea. From *pileos*, a cap; alluding to one division of the perianth. *Linn. Monœcia-Tetrandria.* Nat. Ord. *Utricaceæ.*

An extensive genus of annual or perennial herbaceous plants, most of which may be described as mere weeds. *P. serpyllifolia* is known as the Artillery Plant. This species is a native of the West Indies, and is a useful, low-growing, mossy-looking plant, remarkable for the manner in which it discharges its pollen grains. When the flowers are ready to expand, the least moisture causes the calyx to expand, and the pollen is thrown out with great force to the distance of nearly a foot. By putting a plant, when in flower, quickly in a vessel of warm water, these discharges will be rapidly kept up for some minutes, a perfect representation of miniature artillery, both in sound and smoke. The plants are well adapted for baskets, stands, or rockeries. *P. muscosa* is now extensively used for massing with Echeverias and other plants used in "carpet bedding." Propagated freely by cuttings.

Pilocereus. From *pilos*, wool, and *cereus;* alluding to the long hairs upon the spine cushions. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

The well-known Old Man Cactus, and a few allied species, have been separated under this name from the genus *Cereus*, but, as in other genera of *Cactaceæ*, the distinguishing characters are scarcely of generic importance. All the species are natives of Mexico and tropical America. *P. senilis*, the Old Man Cactus, the one met in our green-houses, but by no means common, is usually seen from one to two feet high, and rarely three, but in Mexico, its native country, it attains a height of from twenty to twenty-five feet, with a diameter of nine or ten inches, and its fluted character gives it somewhat the appearance of an architectural column. The stem is divided into thirty or forty narrow furrows with corresponding ridges, which are furnished at very short distances with tufts of white spines, surrounded by numerous long, flexible white hairs, resembling the gray hairs of an old man's head; hence has arisen not only the common name of the plant, but also its scientific appellation. When young the stems are fleshy and succulent, but when they get old their tissue becomes filled with an extraordinary quantity of small sand-like grains, composed of oxalate of lime, not less than from sixty to eighty per cent. having been found in individual stems. This genus requires the same culture as other Cacti, and is increased in the same manner.

Pilogyne suavis. A very beautiful climbing plant belonging to the Nat. Ord. *Cucurbitaceæ.*

PIL

It is a rapid-growing plant, with small, glossy green leaves, rendering it desirable for covering verandas or trellises. It is also a splendid house plant. The flowers are yellowish white, and quite fragrant. This plant was introduced into the United States about 1875, from Germany, but its nativity is not known. There is no history of it in any English botanical work. It is rapidly increased by cuttings or from seeds.

Pilumna. From *pilos* or *pileos*, a cap; shape of the flowers. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of Peruvian epiphytal Orchids. They have medium-sized flowers, of a white, or greenish-white color, which are produced in spikes of from three to five. They are remarkable for their delicious fragrance. They succeed well in a cool house, and should be grown in leaf mould and sphagnum moss. They are increased by division. Introduced in 1843.

Pimelea. From *pimele*, fat; referring to the viscid matter on the leaves of some species. *Linn. Diandria-Monogynia.* Nat. Ord. *Thymelaceæ.*

An extensive genus of green-house evergreen shrubs, natives of Australia, Tasmania, and New Zealand. They make handsome plants in English green-houses, and produce many terminal clusters of white, rose, or yellow flowers of great beauty, but our hot, dry summers are not congenial to them. Propagated by cuttings. Introduced in 1824.

Pimenta. Allspice Tree. From *pimento*, the Spanish name. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myrtaceæ.*

P. vulgaris, the only species, is an extremely handsome tree, a native of South America and the West Indies, especially of the island of Jamaica, whence the berries or Pimento of commerce are exported in large quantities. This tree grows to the height of about thirty feet, with a smooth brown trunk and shining green leaves, resembling those of the Bay; the branches coming out on all sides, the trees are clothed in the most luxuriant foliage. The great profusion of white flowers contrasts pleasingly with the dark green leaves, the whole forming an object of vegetable beauty rarely surpassed; while the rich perfume which the flowers exhale renders an assemblage of these trees one of the most delicious plantations of even a tropical clime. The Pimento tree grows spontaneously in many parts of Jamaica, but abounds more particularly on the northern side of the island, in elevated spots near the coast. When a new plantation is to be formed, no regular planting or sowing takes place. It is usual to appropriate a piece of land either in the neighborhood of a plantation already formed, or in a part of the woodlands where these trees are scattered in a native state. The land is then cleared of all wood except these trees, which are left standing, and the felled timber is allowed to remain, where it falls to decay. In the course of a year young Pimento plants are found springing up in all parts of the land. At the end of two years the land is thoroughly cleared, only those plants being left that promise a vigorous growth; these arrive at maturity in from five to seven years. Plantations are thus formed with apparently little trouble; this, however, can only be done in those parts where the tree is of spontaneous growth. This tree is purely a child of Nature, and seems to mock all the labors of man in his endeavors to extend or improve its growth: not one attempt in fifty to propagate the young

PIN

plants or to raise them from the seed, in parts of the country where it is not found growing spontaneously, having succeeded. The berries have to be gathered very soon after the flowers fade; if left to ripen on the tree they lose their pungency, and become valueless. When picked they are spread out thinly on floors, exposed to the full heat of the sun, for about a week, or until fit for exportation.

Pimpernel. See *Anagallis.*

Pincenectitia. Lindley says this is "a name under which some plants allied to *Cordyline* and *Dasylirion* have been sent out by Belgian horticulturists. It is supposed to have arisen from the blunders of ignorant gardeners, who mistook the plant for a *Freycinetia*, but wrote the name so badly that it was read as above." The species are described as a genus of *Liliaceæ*, under the name of *Beaucarnea*, which see.

Pine-Apple. See *Ananassa.*

Pine. See *Pinus.*

Pinguicula. Butterwort. From *pinguis*, fat; referring to the greasiness of the leaves. *Linn. Diandria-Monogynia.* Nat. Ord. *Lentibulaceæ.*

Curious and beautiful little plants, very difficult to keep in an artificial state, although some of them are indigenous. They are marsh plants, and refuse to exist out of their native position; but when seen in health, their beautiful white, yellow, lilac, or violet-colored flowers are the admiration of every beholder. The species are common from New York to Florida.

Pink. See *Dianthus.*.

Pink-root. See *Spigelia.*

Pinus. Pine Tree. From *pinos*, a Greek word used by Theophrastus to designate a Pine tree; and some authors derive it from the Celtic *pin*, or *pyn*, a mountain or rock; alluding to the habitat of the tree. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Pinaceæ.*

This genus is very extensive, and contains some of our most useful trees for economic purposes, besides a number of species of an ornamental character. The genus is confined solely to the northern hemisphere, and the more useful and gigantic to the United States. *Pinus Australis* is the Yellow or Pitch Pine of the Southern States. This species seems to be especially assigned to dry, sandy soil, and it is found without interruption from Virginia to Florida, covering a tract of more than six hundred miles long from northeast to southwest, and more than one hundred miles broad from the sea toward the mountains of the Carolinas and Georgia. The average height of the trees is from sixty to seventy feet, with a diameter of from fifteen to eighteen inches. In Virginia, where this species first makes its appearance, it does not grow so large; but in Georgia and Florida it greatly exceeds these dimensions. Besides the valuable timber it affords, it also produces the pitch, tar, turpentine, and rosin of commerce. The leaves are about a foot long, of a beautiful brilliant green, and produced in bunches at the extremity of the branches. *P. inops* is the *Jersey* or *Scrub Pine*, a species that grows from fifteen to forty feet high, with a diameter of from six to fifteen inches; its habit is straggling and rough. Its only use is for fuel. *P. milis*, Yellow Pine, is a fine tree, growing from fifty to sixty feet high, furnishing a fine-grained, lasting timber, which is especially used for flooring. Common from New Jersey to Wisconsin and southward. *P. pungens*, Table Mountain Pine, is a large tree, with short, compact, pale green leaves, and re-

sembles the European Pines. Its cones are borne in large clusters, and remain upon the trees for many years. It is valuable as a timber tree. It is found upon the Blue Ridge in Virginia and southward. *P. rigida* is commonly known as Pitch Pine, and is common throughout the Middle and Northern States, frequently growing in swamps with the Red Cedar. It is a species of medium growth, and of but little value. *P. resinosa*, or Red Pine, commonly and improperly called Norway Pine, is found in most of the Northern States. It is a tall-growing, erect, symmetrical tree, with light green leaves and short cones. The wood is dark, compact, and much esteemed for its durability. *P. edulis*, the Edible Pine, or "Nut Pine" of California and New Mexico, is an interesting species, growing from fifty to sixty feet high, producing great quantities of thin-shelled seeds, about the size of Pease, very nutritious, and of a pleasant flavor. *P. monophyllus* is another nut-bearing Pine, discovered by Col. Fremont in northern California, where it is extensively diffused over the mountains for a distance of about six hundred miles. In some places it makes considerable growth, but is usually a small, slow-growing tree, of but little value for its timber. *P. tæda*, the Loblolly Pine of the Southern States, is a tree that grows from eighty to a hundred feet high in the forests; in open grounds its trunk is low and branches spreading. This species immediately takes possession of and completely covers lands that are thrown out of cultivation. *P. Sabiniana*, Sabine's Pine, is one of the noblest California species, with a trunk a hundred and forty feet high, and is remarkable for its large, heavy cones, the scales of which are produced into long, recurved points. Its nut is large and edible. This tree occurs on the western slopes of the Sierra Nevada, and is one of the California White Pines. Its foliage is thin and of a very light green, which gives it a peculiar aspect, different from all the other Pines of that country. Its timber is very tough, and highly esteemed. *P. Lambertiana* is called Sugar Pine from the sweetness of its resinous juice, which exudes plentifully from this tree. This species was discovered by the intrepid Douglas, growing upon the most sterile, sandy plains, on the western slopes of the Rocky Mountains in California. He describes it as a tree of great size, attaining a height of two hundred feet, and a circumference of about sixty feet. Its branches are pendulous, and form an open, pyramidal head; the leaves are from four to five inches long; the cones pendulous from the extremities of the branches, and, when ripe, about sixteen inches in length. The seeds are large, sweet, and nutritious, and form an important article of food to the Indians, who collect them. The most valuable and useful of the many species is *P. strobus*, our common North American White Pine. This is a handsome, slender tree, growing from one to two hundred feet high, and with a circumference of from three to twelve feet. This tree is diffused, though not uniformly, over a vast extent of country; from Maine westward to the Rocky Mountains, it is sectional. For economical purposes, its value is greater than all other timbers combined. There are many species cultivated for their beauty as ornamental trees for the lawn, and they are entitled to more consideration than they have thus far received. They thrive well in a sandy or light loamy soil, and may be transplanted from the nursery rows with perfect safety. Numerous other species are given in nurserymen's catalogues, grown mainly for lawn decoration.

Pinxter Flower. A local name of *Azalea nudiflora*, common in the swamps of the Middle and New England States.

Piper. Pepper. From *pepto*, to digest; referring to the stimulating power. *Linn. Diandria-Triandria.* Nat. Ord. *Piperaceæ.*

"*P. nigrum* yields the Pepper of commerce, a condiment that has been held in high esteem from the earliest times. It is frequently mentioned by Roman writers of the Augustan age, and it is related that in the fifth century Attila demanded, among other things, three thousand pounds of Pepper in ransom for the City of Rome. Pepper is cultivated in the East and West Indies, Sumatra, Java, etc., but that which comes from Malabar is held in the highest esteem. The Pepper-vine will, if left to itself, attain a height of twenty or more feet; but in cultivation it is found more convenient not to allow it to exceed the height of twelve feet. The plants are placed at the base of trees that have rough or prickly barks, in order that they may more readily attach themselves to the trunk. In three years they produce their spikes of fruit, and continue to do so for some seven or eight years, after which time they become less productive. The fruit, when ripe, is of a red color. It is gathered before it is fully ripe, and spread on mats in the sun, when it loses its red color and becomes black and shriveled, as when offered in the market. This is Black Pepper. White Pepper is the same fruit, freed from its outer skin by maceration in water and subsequent rubbing. There are several species under cultivation, but all of the same general character.

Pipe Vine. See *Aristolochia.*

Pipsissewa. See *Chimaphila.*

Piscidia. Jamaica Dogwood. From *piscis*, a fish, and *cædo*, to kill; the leaves, twigs, and bark are used to stupefy fish. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A small genus of evergreen, white-flowered trees, from the West Indies. All that is of interest in this genus is included in the derivation of the name.

Pistachio Nuts. See *Pistacia.*

Pistacia. Altered from *Foustaq*, its Arabic name. *Linn. Dicœcia-Pentandria.* Nat. Ord. *Anacardiaceæ.*

A genus of ornamental deciduous trees, indigenous to Asia Minor, and which are particularly abundant in Syria. *P. Lonticus* yields the Gum Mastic, and *P. vera* yields the eatable Pistachio Nuts. The species are rarely cultivated, except in botanical collections.

Pistia. Derivation of name obscure. *Linn. Dicœcia-Monandria.* Nat. Ord. *Pistiaceæ.*

Genus of tropical aquatics. *P. stratiotes* is very common in the West Indies, where it is known as Water Lettuce. It propagates itself with great rapidity, and frequently completely covers tropical ponds and water tanks with a coating of verdure, keeping the water beneath fresh and cool. Each plant sends out several runners, and upon the ends of these other similar plants are formed, which, again, send out runners until, in a short time, the surface of the water is covered. Its flowers are very small, and borne in little spathes at the base of the leaves. The plant is well adapted for the aquarium.

Pisum. The Pea. From *pis*, the Celtic word for

pea, whence the Latin name, *pisum*. *Linn. Diadelphia-Decandria*. Nat. Ord. *Fabaceæ*.

For a description of this genus see *Pea*, its best representative.

Pitcairnia. In honor of *William Pitcairn*, a physician of London. *Linn. Octandria-Monogynia*. Nat. Ord. *Bromeliaceæ*.

A handsome genus of green-house herbaceous plants, remarkable for their long panicles of bright red flowers, and for their long, narrow, prickly, green leaves. They are natives of the West Indies and South America. They will grow freely in a rich sandy loam, but require partial rest after having made their new growth previous to flowering. They are increased by division or from seed. Introduced in 1820.

Pitch Pine. See *Pinus*.

Pitcher Plant. See *Nepenthes* and *Sarracenia*.

Pittosporum. From *pitto*, to tar or pitch, and *sporos*, seed; the seeds are covered with a resinous pulp. *Linn. Pentandria-Monogynia*. Nat. Ord. *Pittosporaceæ*.

An extensive genus of half-hardy evergreen shrubs, natives of China, Australia, the Canaries, and the Cape of Good Hope. Most of the species have terminal tufts of white, fragrant flowers, and broadish, shining, dark green leaves, and they are all very ornamental. They require the protection of a cellar or cool house during the winter. Propagated by cuttings. Introduced in 1789.

Placea. Derivation of name unknown. *Linn. Hexandria-Monogynia*. Nat. Ord. *Amaryllidaceæ*.

P. ornata, the only species, is a delicate bulb from Chili, producing on a slender scape, about six inches high, six flowers, which are snow white on the outside, and striped with brilliant vermilion lines within. It requires cool green-house treatment. While flowering, and until it shows symptoms of rest, it needs a warm and humid atmosphere, after which it can be put under a bench until January, when it should be re-potted and moderately watered, and it will flower in May. Propagated by offsets. Introduced in 1840.

Plane Tree. See *Platanus*.

Plantago. From *planta*, the sole of the foot; resemblance in the leaves. *Linn. Tetrandria-Monogynia*. Nat. Ord. *Plantaginaceæ*.

The common *Plantain* of the door-yard, a troublesome weed, naturalized from Europe.

Plantain. See *Musa*.

Plantain. See *Plantago*.

Plantia. Named by Dr. Herbert in honor of *Mr. Plant*, a zealous and industrious experimental cultivator and nurseryman at Cheadle, England, who has raised some interesting hybrids among this race of plants. *Linn. Triandria-Monogynia*. Nat. Ord. *Iridaceæ*.

P. flava, the only species, is a beautiful yellow flowering bulb from the Cape of Good Hope. It is a delicate growing plant, bearing numerous pretty little flowers on a slender scape about one foot high. It requires the same treatment as the tender species of *Iris*. Propagated by offsets. Introduced in 1842.

Platanthera. Native Orchids, now included in the genus *Habenaria*, which see.

Platanus. Plane Tree, Button-wood, or Sycamore. From *platys*, broad or ample; in allusion to the spreading branches and shady foliage. *Linn. Monœcia-Polyandria*. Nat. Ord. *Platanaceæ*.

P. occidentalis is the well-known Button-wood tree, and is common throughout the United States east of the Rocky Mountains. *P. racemosa*,

a Californian species, is remarkable for its deeply five-lobed leaves, the under surface of which, even when they become old, is copiously clad with woolly hairs. This species furnishes a hard and durable timber, and is much less liable to warp than that of *P. occidentalis*. Some fine specimens of this genus are to be seen as street trees in Washington, D. C.

Platycerium. Stag's Horn Fern. From *platys*, broad, and *keras*, a horn; referring to the form of the fronds. *Linn. Cryptogamia-Filices*. Nat. Ord. *Polypodiaceæ*.

A very distinct and remarkable genus of Ferns, formerly grouped with *Acrostichum*, but now placed by themselves in a separate genus under the name *Platycerium*, because they produce their sori in large amorphous patches, and not, as in the true *Acrostichæ*, over the whole fertile portions. The species are few in number, chiefly Eastern or Australian, and for the most part tropical. "They have heteromorphous, coriaceous, laciniate, or lobate fronds, clothed with stellate hairs, and the fertile fronds are articulate. The broad fronds are traversed by several furcate ribs, between which there is a close network of finer buried veins. The large, shapeless masses of spore cases are attached to a plexus of crowded veins, and are quite naked. In *P. biforme* they occupy a separate scutiform lobe, but in the other species they are variously situated near the margin." *P. alcicorne* is the type of the genus, and was introduced in 1808. It is best known under its common name of *Stag's Horn Fern*, so called because of the striking resemblance of the fronds to the horns of a stag. This is the species commonly seen in our green-houses. It is a native of New South Wales, and was introduced in 1808. *P. grande*, a native of Moreton Bay, was introduced into Europe in 1828, but is still quite rare in the United States. It has broader and larger fronds than *P. alcicorne*, and is a plant of altogether grander proportions. To this species has been given the name of *Elk's Horn Fern*. Mr. F. W. Burbidge, a well-known botanist and collector, in his recent book of travels in Borneo, etc., ("The Gardens of the Sun,") thus speaks of the Elk's Horn Fern: "I resided for some time in a house which had been occupied by Mr. Hugh Low, the garden and fruit orchard of which afforded me most delightful walks morning and evening. I never saw the Elk's Horn Fern (*Platycerium grande*) so luxuriant anywhere as it was on the boles of some large Orange trees here. The barren fronds were broad, like the horns of the giant Irish elk, and the more slender fertile ones drooped on all sides from the base of the nest formed by the leafy expansions. I measured some of these fertile fronds, and found them fully *seven* feet in length. These splendid Ferns, and the choicest of epiphytal Orchids, which had been planted among the branches of the trees, made a walk among them most enjoyable." This species is still quite rare in the United States. Another species, *P. Æthiopicum*, has been still more recently introduced, and is to be found in few collections as yet. The fronds of this species are of still grander proportions than the preceding, and has received the common name of Moose Horn Fern. The above, with *P. Wallichii*, are the best and most interesting of these grotesque Ferns. All these species are worthy of a place in any collection, however small. It is supposed by many that they are difficult to grow; but this

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is not so. There are very few plants that will accommodate themselves to such varying conditions of heat, moisture, and exposure. They are admirable room plants. They may be grown in pots in a porous soil composed of leaf-mould, sand, and plenty of potsherds or pieces of charcoal; or, better still, they may be grown on cork or a piece of a tree log, two or three feet long and about a foot in diameter. They are propagated by division and by spores, the latter, however, being an uncertain method of propagation except by an expert.

Platycodon. From *platys*, broad, and *kodon*, a bell; the flowers are broad and bell-shaped. *Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

A genus of hardy herbaceous perennials, with large white flowers, natives of China and Dahuria. They grow readily in the garden, and are increased from seeds or by division. In the Northern States they should have a slight protection in winter.

Platylobium. Flat Pea. From *platys*, broad, and *lobos*, a pod; in reference to the broad legumes. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A small genus of handsome evergreen shrubs from Tasmania and New Holland. Like other New Holland plants, these require a light sandy soil, well drained. They should be carefully watered, and have plenty of fresh air whenever it can be admitted. A shelf near to the glass in the most airy part of the green-house in winter, and a shaded situation out of doors in summer, will suit them. The slender branches of all the species require some support, though they do not look well when trained to a regular trellis. It is, therefore, better to use slight sticks where most wanted, allowing the points of the shoots to hang in a graceful, pendent manner. The prevailing color of the large pea-shaped flowers is orange, and an occasional full red. The species are rarely met in collections, though deserving of general cultivation. They are propagated by cuttings or from seed. Introduced about 1800.

Platyloma. From *platys*, broad, and *loma*, a fringe. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of tropical Ferns, some of which are very beautiful. They require to be grown in a shaded house, warm and moist.

Platystemon. From *platys*, broad, and *stemon*, a stamen. *Linn. Polyandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

Very handsome yellow-flowering annuals, quite hardy, of creeping habit, and free to flower. The seed should be sown in March, on a warm border, where the plants are required to bloom. The two species that compose this genus are natives of California and Siberia.

Platystigma. From *platys*, broad, and *stigma*, the female organ. *Linn. Polyandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

P. lineare, the only species, is a hardy annual, found in California in 1833. It is a dwarf-growing and free-blooming plant. The flowers are yellow, and, from their profusion, quite showy. It requires no more care than any other hardy annual.

Plectopomas. A new group of hybrid *Gesneras*, which some writers have constituted a distinct genus. They are a strong, erect-growing class, with but little to distinguish them from others of this interesting order. See *Gesnera.*

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Plectranthus. From *plektron*, a cock's spur, and *anthos*, a flower; referring to the shape of the flower. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

Green-house shrubs and herbaceous plants, natives of Africa, South America, and Asia. They all have purple flowers, produced in terminal and axillary racemes. They are rarely cultivated.

Pleione. A mythological name. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of dwarf epiphytal Orchids, formerly classed with *Coelogyne.* They are found growing in high altitudes in the mountains of Northern and Northeastern India. They are remarkable for their dwarf habit and richly-colored flowers. The flowers are produced in autumn or early winter, after a period of rest, and immediately precede the new growth. They are of easy culture, requiring a house of moderate temperature, and alternate seasons of growth and rest. Propagated by division. Introduced in 1864.

Pleroma. From *pleroma*, fullness; referring to the cells of the seed-vessel. *Linn. Decandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

A small genus of handsome green-house evergreen shrubs from Brazil. They are free flowering, and of easy culture. A rich soil and liberal watering during summer are essential that the new growth may be strong; they will then produce their clusters of purple flowers freely in autumn and winter. *P. elegans* is one of the best known species, and bears beautiful flowers of a rich purple color. They are increased by cuttings. Introduced in 1821.

Pleurisy Root. A popular name of *Asclepias tuberosa*, from its supposed medicinal qualities.

Pleurogyne. From *pleuron*, a side, and *gyne*, the female organ; this issuing from the side of the seed-vessel. *Linn. Pentandria-Digynia.* Nat. Ord. *Gentianaceæ.*

P. rotata, the only species, is a low-growing, hardy annual from Siberia.

Pleurothallis. From *pleuron*, a side, and *thallo*, to flower; in allusion to the one-sided disposition of the flowers of some of the species. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

This is one of the most extensive genus of Orchids, comprising nearly three hundred species, all epiphytes, and natives of the West Indies and South America. Though interesting botanically, the flowers have not sufficient merit to warrant their introduction into the Orchid house.

Plocostemma. From *plokos*, curled, and *stemma*, a crown; referring to the crown of the stamens. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

A small genus of green-house evergreen twiners, allied to *Hoya*, and requiring the same general treatment. They inhabit the forests of Borneo and Java. Introduced in 1858.

Plum. The well-known *Prunus domestica* and its varieties. The species from which have originated the Plums of our gardens are found throughout Asia and Southern Europe. The early history of the cultivated varieties is quite obscure. They were introduced into England from France early in the fifteenth century. Both the French and English horticulturists have given this fruit considerable attention. New York has the credit, however, of having produced the greatest number of excellent varieties. Dowing says: "That the soil and climate of the

Middle States are admirably suited to this fruit is sufficiently proved by the almost spontaneous production of such varieties as the Washington, Jefferson, Lawrence's Favorite, etc.; sorts which equal or surpass in beauty or flavor the most celebrated Plums of France or England." There are several species indigenous to this country, some of which are of fair flavor, and are now being cultivated by some of our nurserymen. Chickasaw Plum, *Prunus Chicasa*, is a native of Maryland and southwestward to Texas, where it is known as the Dwarf Texas Plum. Beach Plum, *P. maritima*. This species is a low, straggling tree or shrub, from two to five feet high. The fruit is nearly round, red or purple, and covered with bloom. It is common in sandy places on the sea-coast from Maine to Virginia, and seldom ripens well elsewhere. The Wild Red or Yellow Plum is *P. Americana*. This species grows from ten to twenty feet high, and is common in hedge-rows from Canada to the Gulf of Mexico. The fruit is pleasant-tasted, but has a tough skin. It ripens in July and August. The great difficulty in the cultivation of the finer varieties of Plums is the *Curculio*, which punctures the fruit in the green state, and lays its eggs, which, by the time the fruit is ripe, develops to the larvæ state, completely destroying the fruit. The only effectual remedy thus far is that so strongly recommended and practiced years ago by Mr. John J. Thomas and Dr. Trimble, and so successfully practiced by Ellwanger and Barry, in their extensive Plum Orchard, to spread sheets under the trees and jar the branches so as to shake off the insect. This, to be effective, must be begun just after the fruit has formed, and continued at least once a week for thirty or forty days.

Plumbago. Leadwort. From *plumbum*, a disorder in the eyes, which some species were formerly said to cure. *Linn. Pentandria-Monogynia.* Nat. Ord. *Plumbaginaceæ.*

A genus consisting of green-house evergreens and hardy herbaceous plants, natives of Europe, Asia, and Africa. Three of the species are well worth growing in the green-house. *P. Capensis*, with lavender-blue flowers, *P. rosea*, with rose-colored flowers, and *P. alba*, with white flowers. Each will grow well with ordinary treatment. The former is a valuable plant, as it produces its large panicles of lavender flowers nearly the whole winter. *P. Larpentæ* has deep azure blue flowers, flowering from September to November, and is perfectly hardy. They are easily propagated by cuttings of the roots or shoots and division. Introduced in 1818.

Poa. Meadow Grass. From *poa*, signifying grass or herbage. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

An extensive genus of grasses, containing some that are valuable for hay and pasture. *P. pratensis* is the well-known Kentucky Blue Grass, introduced from Europe, and now thoroughly naturalized. *P. annua* is one of the worst weeds of English gardens.

Pod Fern. See *Ellobocarpus.*

Podolepis. From *pous*, a foot, and *lepis*, a scale; flower-stalk covered with scales. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

Very pretty Australian plants. They are all nearly hardy. The perennials are increased by dividing the root, and the annuals (*P. gracilis, etc.*) by sowing in the green-house or on a hot-bed in February or March, and transplanting into the open border in May.

Podolobium. From *pous*, a foot, and *lobos*, a pod; the seed-pod stands on a foot-stalk within the calyx. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A small genus of New Holland evergreen shrubs, with handsome red and yellow flowers. Ordinary green-house treatment will grow them successfully. They are best grown from seed. Introduced in 1822.

Podophyllum. Duck's Foot. Abridged from *Anapodophyllum*, a word signifying a duck's foot; the leaves bear some resemblance to that; whence the English name, Duck's Foot. *Linn. Polyandria-Monandria.* Nat. Ord. *Ranunculaceæ.*

This is a small genus of hardy herbaceous plants, with thick creeping root-stocks, which send up in spring a stem bearing two leaves, with a solitary flower between them. *P. peltatum*, a native species, is common in moist, shady woods, and is distinguished by the stamens being double the number of the petals. Its leaves are from five to nine lobed; its flowers large, white, and nodding; and its fruit egg-shaped and yellowish, somewhat resembling a small lemon, and hence sometimes called Wild Lemon, but more generally May Apple, or Mandrake. Its foliage is narcotic and poisonous, but the acid pulp of the fruit is eatable, though of a mawkish flavor. The roots possess active medical properties, highly esteemed by the Eclectic practitioners.

Pogogyne. From *pogon*, a board, and *gyne*, the female organ; the style is bearded. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

P. multiflora, the only known species, is a hardy annual. It is a native of California, and was introduced in 1836. The flowers are lilac, and produced in great numbers. It thrives with the simplest garden culture.

Pogonia. From *pogon*, a beard; alluding to the fringed lip of the flowers. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of terrestrial Orchids, common both in temperate and tropical regions. They are small plants, with drooping flowers, on slender pedicels, of a purple or greenish-yellow color. Several of the species are found from New York southward.

Poinciana. Flower Fence. Named after *M. de Poinci*, once Governor of the Antilles. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A small genus of very beautiful green-house evergreen shrubs, natives of South America and the East Indies. *P. pulcherrima*, the Barbadoes Flower Fence, is a really beautiful object when well grown, as is also *P. regia*, the former having large red and yellow flowers, and the latter rich crimson. They require a strong heat through the growing season to cause them to flower freely. Propagated by seeds or from cuttings of half-ripened wood. Introduced in 1778.

Poinsettia. Named in honor of *Joel R. Poinsette*, American minister to Mexico, who discovered the plant in Mexico in 1828. *Linn. Monœcia-Monandria.* Nat. Ord. *Euphorbiaceæ.*

A small genus of evergreen shrubs from Mexico, producing large terminal bracts of fiery scarlet leaves from December until February; they give the plant a most splendid appearance. There is a variety with white bracts, but it is inferior to the species. *Poinsettia pulcherrima plenissima*, a new and double variety of recent introduction, is a magnificent plant, remarkable for the distinct character of its floral bracts, the size of the heads in which they are

produced, and their marvelous brilliancy of color. Instead of the bracts being borne in a single head and spreading out as in the old form, in the new double kind they are gathered into clusters, which fill up the center, so that the whole inflorescence is full and rosette-like in form. The double variety was discovered by Mr. Roezl in Mexico, and was bought by Mr. Isaac Buchanan, of New York, who sold it to an English florist, by whom it was distributed. This plant is of the easiest culture. After flowering cut back to within two buds of the old wood, take up the plants, and put them in a convenient place under a bench, and cover the roots with sand or earth, and keep dry. Let them remain until it is time to plant out ordinary bedding plants, when they should be put out in the open air, and planted in boxes six inches deep, (say six plants in each box,) a foot or so apart, giving them good rich soil. They should be taken into the house before the nights begin to get cool. In the latitude of New York they should be housed by the middle of September. They may be grown to flower in these boxes by giving them plenty of manure water; although, if wanted in large quantity, it is best to place the boxes on a green-house bench, knock off the sides and ends of the boxes, and fill up to the level between with soil. After the plants have become thus established, an occasional watering with liquid manure will add greatly to their growth. At no time should the temperature in the house fall below 50° at night or 70° during the day. To propagate, allow the cuttings to dry a day or two after they are taken from the plants; then cut them into pieces of two or three buds each, and insert them in an ordinary propagating bench. Pot off as soon as they are rooted, and grow on until the weather will permit of their being put out of doors, when they may be given the same care as the older plants. With this treatment the plants will usually be done flowering by New Year's, and may be taken up to make room for other plants.

Poison Bay. See *Illicium.*

Poison Dogwood or **Poison Sumach.** See *Rhus venenata.*

Poison Hemlock. See *Conium.*

Poison Ivy. See *Rhus toxicodendron.*

Poison Oak. See *Rhus toxicodendron.*

Poivrea. Named after *M. Poivre*, a French botanist. *Linn. Decandria-Monogynia.* Nat. Ord. *Combretaceæ.*

A small genus of green-house evergreen climbers of great beauty. The flowers are white or scarlet, produced in terminal or axillary panicles. They are natives of Africa and the East Indies. They require the warmer part of the green-house and a humid atmosphere. Propagated by cuttings. Introduced in 1820.

Poke, Indian. See *Veratrum viride.*

Poke Weed, Virginian. See *Phytolacca decandria.*

Polanisia. From *polys*, many, and *anisos*, unequal; many stamens of unequal lengths. *Linn. Dodecandria - Monogynia.* Nat. Ord. *Capparidaceæ.*

A genus of hardy, free-flowering annuals, allied to *Cleome*, natives of the East Indies chiefly. *P. graveolens* is common in the New England States. None of the species has sufficient beauty to warrant its introduction into the flower border.

Polemonium. Greek Valerian. From *polemos*,

war; Pliny says this plant gained its name from having caused a war between two kings, each of whom claimed the honor of having first discovered its virtues. *Linn. Pentandria-Monogynia.* Nat. Ord. *Polemoniaceæ.*

An extensive genus of hardy herbaceous perennials. They are well-known border plants, that have long been under cultivation. Flowers are mostly blue and white, produced in large terminal heads. The species are common throughout the Northern States and Northern Europe. *P. cœrulium* derives its common name of *Jacob's Ladder* from its beautiful pinnately-cleft leaves. It is common in moist places throughout New York and New Jersey, and is a favorite border plant. All the species are propagated readily by division, or from seed, which should be sown in June to flower the coming season.

Polianthes. The Tuberose. From *poly*, many, and *anthos*, a flower; an abundance of flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

This interesting genus is composed of two species, both properly green-house evergreen perennials. One of the species, *P. gracilis*, a native of Brazil, with pale yellow flowers, is but little known, and has but little merit. The well-known species, *P. tuberosa*, is a native of the East Indies, from whence it was introduced early in the sixteenth century. The first account given of the Tuberose is in L'Ecluse's "History of Plants," where it appears that it was brought from the East Indies by Father Theophilus Minuti, a Catholic Missionary, about the year 1530, who grew it at Boisgencier, near Toulon. Bernard Paludanus, a distinguished physician at Rome, grew it in 1594, having obtained the roots from the priests, who had, previous to that date, refused all applications for it. This was the single kind. The same, with variegated foliage, is mentioned at nearly as early a date. Parkinson, in that rare old book, his "Garden of Pleasant Flowers," published in 1629, gives a description of it by its then known name, which should not be lost. We quote in full, as it is quite as amusing as instructive: "*Hyacinthus Indicus major tuberosa radice*, 'the Greater Indian knobbed Jacinth.' I have thought fittest to begin with this Jacinth, [Hyacinth,] both because it is the greatest and highest, and also because the flowers herof are in some likenesse neare unto a Daffodille, although his roote be tuberous, and not bulbous, as the rest are. This Indian Jacinth hath a thicke knobbed roote, (yet formed into several heads, somewhat like unto bulbous roots,) with many thick fibers at the bottom of them; from the divers heads of this roote arise divers strong and very tall stalkes, beset with divers faire, long, and broad leaves joyned at the bottome close unto the stalk, where they are greatest, and smaller to the very end, and those that grow higher to the toppe, being smaller and smaller. The toppes of the stalkes are garnished with many faire, large, white flowers, each wherof is composed of six leaves, lying spread open as the flowers of the white Daffodille, with some short threads in the middle, and of a very sweet scent, or rather strong and headee." The double-flowering Tuberose was obtained from seed by Mons. Le Cour, of Leyden, in Holland, (date unknown,) who for many years would not, under any circumstances, part with a root, even after propagating in such quantities as to give him a surplus. He would cause every tuber to be cut in pieces and de-

stroyed, in order to have the monopoly, and to be the only possessor of the flower in the world. The recently introduced variety, known as the Pearl, is a sport, having originated on the grounds of Mr. John Henderson, of Flushing, L. I. Its strong habit of growth, and dark, heavy foliage attracted Mr. Henderson's attention, causing him to give it every chance for perfect development. The result was a variety far superior to the parent, both in size and number of flowers, with a marked superiority in habit of growth, the flower-stalks not being so tall by nearly a foot as the original, a feature making it invaluable for green-house culture. The Tuberose delights in a strong, rich soil, deep and moist. Manure, heat, and water are essential to its perfect development. For cultivation in the open border, the bulbs should be planted about the first of June, covering the tuber about one inch with light, fine soil. No other care is needed than that usually given garden plants. The only care required is in the selection of the bulbs, which, if kept moist and cool during winter, are liable to rot away in the center, rendering them worthless for flowering. Perfect tubers will always be green at the top, or at least sufficiently so to show signs of life; and in choosing, all others should be rejected. Forcing the Tuberose, so as to have the flowers from January to March, is an exceedingly difficult operation, and is now but little attempted here. The plant being of tropical origin, to have it at all times in a growing state requires a high temperature—not less than an average of 80°; consequently, few ordinarily-heated green-houses or private sitting-rooms are at a temperature high enough to insure the continued and uninterrupted growth necessary to the production of flowers in the dark winter months. It is, however, comparatively easily forced, so as to produce flowers during April, May, and June, and again, by retarding the bulbs, during November and December. By the first method, the bulbs are, about the first of January, placed closely together in boxes three inches deep, having two inches or so of damp moss in the bottom. These boxes are placed in some warm spot, where the temperature will average 75°. If for green-house culture, the best place is on the hot-water pipes. In about four or five weeks the Tuberoses will have rooted all through the moss, and they should then be potted in four or five inch pots, or planted in a bench of soil four or five inches deep, and kept in a temperature at no time less than 75°, and flowers will be had in abundance in April. For succession crops, place the dry bulbs in moss, at intervals of three or four weeks. The last crops will usually be the best, as by May and June the temperature will have increased, and less artificial heat will be required. If flowers are wanted during November and December, the retarding process alluded to is resorted to. This is done by selecting such bulbs as are wanted, (care being taken to use only such as are sound and firm,) and placing them in some cool, dry place until the middle of August, when the first crop may be planted, either in pots or in a bench of the green-house, as described above for the spring crop. This planting will produce a crop by November. For the succession crop for December, planting must be delayed until the middle of September. The same high temperature is indispensable as in the spring crop, namely, an average of 75°. The variety best for forcing is the "Pearl,"

which grows only about half the height, and has flowers nearly twice the diameter of the old sort; but for planting in the open ground in the ordinary way, when the flowers are only wanted for fall, the common double variety is the best; as, being less full, the flowers open better under the often unfavorably dry atmosphere that we have in October. Tuberoses are often forwarded, so as to be got in flower in the earlier fall months, in sections of the country where the season is too short. This is done exactly in the way recommended for the spring forcing, by starting the bulbs in damp moss; but for this purpose the dry bulbs should not be placed in the moss until the middle of May. By the middle of June, when the weather has become warm, and they are set out, they will start to grow at once, and will in this way flower from three to four weeks earlier than if the dry bulb had been put in the open ground, cold as it is in most of the Northern States in May. Of course, it will be understood, that when the dry bulbs are placed in the moss to start, it must be in a green-house, or in some place where the thermometer will average 75° or 80°, or they will not start at all, or, at least, very feebly. It will thus be seen, from the foregoing remarks, that it will be utterly useless to attempt to grow Tuberoses at any season unless in a tropical temperature, which at no time should be less than 75°. Many growers of this flower have been sadly disappointed in the results, their flowers coming single instead of double, and they naturally ask the cause. We can only say, there is a tendency in all sports and hybrids to return to the original or type, and this plant is no exception to the rule. The conditions of growth may have much to do with it. We have known large stocks that were wholly double one year, to come nearly all single the next. We cannot satisfactorily account for it, and only know that the annoyance is common in every place where they are grown. From a very close observation, we believe much is due to poor cultivation, and the best remedy is to be found in giving them a very rich soil and good cultivation. Like many other plants, we have found they do best when given a rotation of soil.

Polyanthus. See *Primula.*

Polybotrya. From *poly,* many, and *botrys,* a raceme; the appearance of the fertile or seed-bearing frond. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive genus of tropical Ferns, some very ornamental, and all requiring green-house treatment. Propagated by division or from spores. Mostly natives of the West Indies, and first introduced in 1823.

Polygala. Milkwort. From *poly,* much, and *gala,* milk; reputed effects of the plant on cattle that feed upon it. *Linn. Diadelphia-Octandria.* Nat. Ord. *Polygalaceæ.*

An extensive genus of hardy annuals, herbaceous perennials, and green-house perennials, found inhabiting nearly all countries. A few only are considered valuable as flowering plants, and these few of little interest, except to botanical collections. *P. Senega,* Seneca Snake Root, is a species common in the Middle and Western States, and has considerable reputation for its medicinal properties.

Polygonatum. Solomon's Seal. From *poly,* many, and *gonu,* a joint or knee; referring to the numerous joints of the stem. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

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A small genus of very handsome hardy herbaceous plants, of easy culture and graceful habit, not often seen in the borders, but deserving a place in every collection of hardy plants. *P. multiflorum*, a native of Great Britain, grows from two to three feet high, and has a stout stem, the lower part bare of leaves; the upper gracefully recurves, and produces from the axils of its broad leaves numerous green and white flowers, in clusters of two to four. *P. giganteum*, a native of the Western States, is a species of similar habit, but with smaller flowers. They thrive well in almost any soil or situation, but prefer one that is shady and moist. They are readily increased by root division or from seeds.

Polygonum. From *poly*, many, and *gonu*, a knee; referring to the numerous joints of the stem. *Linn. Octandria-Trigynia.* Nat. Ord. *Polygonaceæ.*

A very extensive and widely-distributed genus of hardy plants, nearly all of which may be properly classed as weeds. *P. hydropiper* is our well-known Smart Weed. *P. orientale* is the Ragged Sailor or Prince's Feather of the old gardens, which has escaped from the garden in some places and established itself in the fields. *P. scandens*, a green-house variety, is exceedingly useful as a basket plant. Propagated by cuttings and from seeds.

Polypodium. Polypody. From *poly*, many, and *pous*, a foot; referring to its numerous root-like feet. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive and very interesting family of Ferns, containing hardy and robust-growing species, natives of our own woods. It also includes some of the most delicate found in the moist woods of the tropics, with others from every intermediate clime. Among them are some very beautiful species for green-house culture, as well as for the shaded borders of the garden. They must have plenty of water while growing, with a temperature proportionate to that of the country from which they were obtained. Propagated by division of root and by spores.

Polypody. See *Polypodium.*

Polystichum. From *poly*, many, and *stichus*, a row; numerous rows of spore-cases. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of tropical Ferns, formerly included in *Aspidium*, and requiring the same general treatment.

Pomegranate. See *Punica granatum.*

Pond Lily. See *Nymphæa.*

Pontederia. Pickerel Weed. Named after *J. Pontedera*, Professor of Botany at Padua. *Linn. Hexandria-Monogynia.* Nat. Ord. *Pontederiaceæ.*

A genus of native aquatic plants, common in the borders of ponds or creeks. *P. cordata*, our common Pickerel Weed, is a beautiful plant, with arrow-shaped leaves, producing in July long spikes of intense blue flowers. This species can be grown easily in tubs on the lawn, in the same manner as the common Water Lily, *Nymphæa odorata.*

Poplar. See *Populus.*

Poppy. See *Papaver.*

Populus. Poplar. Some derive the word Populus from *palpallo*, to vibrate or shake; others suppose it obtained its name from being used in ancient times to decorate the public places in Rome, where it was called *Arbor Populi*, or the tree of the people. *Linn. Dioecia-Octandria.* Nat. Ord. *Salicaceæ.*

A genus of deciduous trees that attain a considerable height, natives of temperate climates of both hemispheres. They are mostly of rapid growth, furnishing timber of a soft, inferior quality. Among the best known and most commonly grown for ornamental and shade trees are *P. fastigiata*, the Lombardy Poplar; *P. tremuloides*, American Aspen; and *P. balsaminifera candicans*, Balm of Gilead. Of this species there is a very old specimen at Newburgh, N. Y., supposed to be one of the largest in the United States. It is a tree of magnificent proportions. It is over one hundred years old, and the trunk is nearly ten feet in diameter. It is one of the attractions of that city. The Cotton-Wood of the Middle and Southern States belongs to this genus.

POS

Portlandia. Named after the *Duchess of Portland*, a distinguished patroness of botany. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of green-house evergreen shrubs, natives of the West Indies and Brazil. They are rarely met in our green-houses, which is to be regretted, as their flowers are splendid; they are long, pure white, trumpet-shaped, borne in axillary clusters of from two to four each. *P. platantha*, a species of recent introduction from Brazil, is of dwarf habit, and is nearly a constant bloomer. They all require a warm house, and are propagated by cuttings of young wood. Introduced in 1775.

Portulaca. From *porto*, to carry, and *lac*, milk; juicy nature of the plants. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Portulacaceæ.*

An extensive genus of hardy annuals, mostly natives of South America. Many of them are exceedingly showy and useful plants for the border. The genus also contains some of our most troublesome weeds, among which is *P. oleracea*, common Purslane. *P. grandiflora* is the parent of our many garden varieties. It is a native of Chili, from whence it was introduced in 1827. The double varieties are of German origin. We quote from "Hovey's Magazine" an excellent article on this plant: "The double varieties are, in fact, charming objects, and may well claim a prominent place among the novel things of recent introduction. The flowers are perfectly double, about the size of a silver dollar, and a bed of them in full bloom presents a gay appearance, not unlike that of the beautiful Ranunculuses, or the little Burgundy Rose, so that the Germans call them 'Portulaca Roses.' The Portulacas need a warm and rather light soil and a dryish situation to flower well. They need not be planted early, unless in a frame or hot-bed, as the seed will not grow freely till the ground is warm. About the middle of June the plants begin to appear in the open ground, and grow with great rapidity, soon covering a large bed, and making a dazzling display with their many-hued flowers from July to frost. The seeds saved from double varieties, like all other double flowers, cannot be relied upon with certainty to produce all double flowers, but the largest part of them will be double, and the single sorts may be pulled up and thrown away or transplanted, unless it is desired to retain them in the same bed with the double kinds."

Posoqueria. *Aymara posoqueri* is the name of *P. longiflora* among the natives of Guiana. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of shrubs or low-growing trees, natives of the West Indies and Guiana. They are remarkable for their very long, white, hang-

ing flowers, the corolla of which is funnel-shaped, with a very long tube, a hairy throat, and a five-parted limb. One or two of the species are to be found in collections of rare plants. *P. revoluta* is one of the best, and should be grown in the hot-house. Propagated by cuttings. Introduced in 1822.

Pot Marigold. See *Calendula.*

Potato. *Solanum tuberosum.* The early history of this important plant, as well as the various stages of its development from a tuber not much larger than a marble, watery and comparatively tasteless, to the present great staple of food, is very obscure. The most accurate and concise account we find in the "Treasury of Botany," written by Mr. W. B. Booth, from which we quote: "The native country of the Potato, and the date of its introduction into Britain, have been subjects of much discussion. There can be no doubt of its being indigenous in many parts of South America, plants in a wild state having been found on the Peruvian coast, as well as on the sterile mountains of Central Chili and Buenos Ayres. The Spaniards are believed to have first brought it to Europe from Quito, in the early part of the sixteenth century. It afterward found its way into Italy, and from thence it was carried into Mons in Belgium by one of the attendants of the pope's legate. In 1598 it was sent from Mons to the celebrated botanist Clusius at Vienna, who states that in a short time it spread rapidly throughout Germany. The first Potatoes that reached this country (England) were brought from Virginia by the colonists sent out by Sir Walter Raleigh in A. D. 1584, and who returned in 1583. They were planted on Sir Walter's estate near Cork, and were used for food in Ireland long before they were even known or cultivated in England. Gerarde had a plant in his garden at Holborn, and has given a figure of it in his *Herbal*, published in 1597, under the name of *Batata Virginiana.* He recommends the roots to be eaten as a delicate dish, and not as common food. In the times of James the First they were so rare as to cost two shillings (sterling) a pound, and are mentioned in 1619 among the articles provided for the royal household. In 1633, when their valuable properties had become more generally known, they were deemed worthy of notice by the Royal Society, which took measures to encourage their cultivation with a view of preventing famine; but it was not until nearly a century after the above date that they were grown to any extent in England. In 1725 they were introduced into Scotland, and cultivated with much success, first in gardens and afterward, (about 1760,) when they had become more plentiful, in the open fields. Since that period the prejudices which so long existed against their use, both in England and Scotland, have gradually vanished, and for many years past the Potato crop has been regarded as a most valuable addition to the staple commodities of life, only second in importance to the cereals." The Sweet Potato is the root of *Batatas edulis*, of the Nat. Ord. *Convolvulaceæ*, and its history is quite as obscure as that of the common Potato. The first mention of it is said to be by an author named Pigafetta, who went to Brazil in 1519, and found it in use as an article of food by the Indians. It was soon afterward introduced into Spain, where it has been extensively cultivated ever since. Of this species there are several varieties indigenous to both the East and West Indies, and South America. The Sweet Potato is extensively grown in the United States, especially in the Southern States.

Potato, Sweet. See *Potato.*

Potentilla. Cinquefoil, Five Finger. From *potens*, powerful; supposed medicinal quality of some of the species. *Linn. Icosandria-Trigynia.* Nat. Ord. *Rosaceæ.*

This is a large genus of very desirable hardy herbaceous plants, and it is somewhat remarkable, when their number (upward of one hundred and thirty species and varieties) and their ornamental character are considered, that so few of them are met with in gardens. They grow without trouble in any tolerably good soil, and produce their scarlet, orange, yellow, crimson, and rose colored double and single flowers in great abundance. The species are common to both hemispheres, and are propagated readily from seeds or by division. First introduced in 1680.

Pothos. From *Pothos*, the name of a species in Ceylon. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Orontaceæ.*

A genus of climbing shrubs, natives of India, China, and New Holland. They are epiphytal, and have cord-like stems, sending out false roots here and there, and attaching themselves to trees. A few of the species have very handsome foliage, and are grown in the green-house for the sake of their leaves. The leaves of *P. palmata* are three feet long, and the foot-stalks four. They are increased by cuttings. Introduced in 1790.

Pourretia. In honor of *Abbé Pourret*, a French botanist and traveler in Spain. *Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

An ornamental genus of green-house plants, differing but little from *Billbergia*, and requiring the same management. All the species are natives of South America. Propagated by suckers.

Prickly Ash. See *Xanthoxylon fraxineum.*

Prickly Comfrey. See *Symphytum.*

Prickly Pear. See *Opuntia.*

Prickly Poppy. See *Argemone.*

Priestleya. Named in honor of the celebrated *Dr. Priestley. Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A handsome genus of Cape plants, with brilliant yellow flowers. They grow best in very sandy loam, which must be well drained. The necessary water must be given cautiously at all times, especially in winter, when great care must be taken to keep the leaves dry, for if wetted then they die off, and thus weaken the plant. The ornamental character of the genus is sufficiently great, however, to deserve all the necessary attention. Propagated by cuttings of well-ripened wood. Introduced in 1800.

Prim. One of the common names of *Ligustrum.*

Primrose. See *Primula.*

Primula. Primrose. From *primus*, the first; in allusion to the early flowering of the plants. *Linn. Pentandria-Monogynia.* Nat. Ord. *Primulaceæ.*

This extensive genus includes three of the most popular and beautiful of florist's flowers, viz., the *Auricula*, the *Polyanthus*, and the *Primrose.* Of each, there are almost innumerable varieties. The Auricula, *Primula auricula*, is a native of the Alps of Switzerland, and the mountainous countries adjoining, whence it was called, when first introduced in 1596, the Mountain or French Cowslip. It was also called Bear's Ear or Oricola, whence the modern name of Auric-

ula. Parkinson, in 1629, enumerates twenty varieties, which he says were the best, though "many other varieties were to be found with those who are curious conservers of these delights of nature." The Alpine Auriculas, though hardy in Britain, will not, however, endure the rigor of our winters without protection, and as much care is needed to protect them against the sun as the cold. For out-of-door culture, they should be planted in a rich, heavy soil on the north side of a house, where there is but little or no sun. On the approach of severe weather, say December 1st, cover the plants with an inverted sod. With this care we have seen a large bed, planted for more than thirty years, that has never failed of producing enormous crops of flowers, in every variety and shade of color known to the species. Notwithstanding they may be grown easily in this manner, the florists usually grow them in pots in cold pits or in the green-house kept cold, in somewhat near the same manner as the Chinese Primrose, in order that they may be better able to control them, and protect by frames from storms, that destroy the powdery bloom upon the surface of the flower, its greatest feature of beauty; and also to enhance its commercial value. The Auricula is propagated by division of the root, or by cutting off slips with a portion of the root attached; but a still better plan is to sow seeds in March, which make fine flowering plants the next season. We use this method exclusively. The Polyanthus, *Primula vulgaris*, is pretty generally distributed throughout Europe. There are a great number of varieties, from a delicate straw color to dark maroon and pure white, with an endless variety of shades and markings. The species is perfectly hardy, and grows freely in garden soil, either in the shade or in exposed situations. Propagated by division or by seeds sown in March. *P. præmitens* or *Sinensis*, and its varieties, are extensively grown as plants for pot-culture for the sitting-room or the green-house, as well as for use in winter for cut flowers. To get strong plants it is best to sow the seeds about March or April; the English plan of sowing in July or August will not answer well in our hot, dry climate. The seeds should be sown in shallow boxes, which may be two inches or so in depth; the soil used may be good friable loam, which should be sifted fine and pressed down nicely with a smooth board, so that it is perfectly level; on this smooth level surface of soil sow the seeds thickly, and press them down into the soil, which will sink them level with the smooth surface. Next take sphagnum moss (dry refuse hops or leaf mould will also do, but moss is best) and rub it through a sieve as fine as musquito-wire, and sift this pulverized moss over the seed just thick enough to cover the seeds up, which will be something about the one-sixteenth part of an inch. This covering is light, and, at the same time, its spongy character keeps the seeds in the necessary condition of moisture for germination. We have found that this method for the sprouting of all seeds that are difficult of germination is excellent, so that if the seeds have any vitality whatever, germination is certain. After the Primulas have started to a full development of the seed leaf, they are "pricked off" in the same sort of shallow box that the seeds were started in, at a distance of half an inch or so apart. If this is not promptly done there is great danger of the young plants being attacked by a species

of fungus, which is quickly fatal. In from four to six weeks after the young Primulas have been growing in these boxes they will be of sufficient size to be placed in two and a half inch pots; and by about this time the weather will have become warm, and the plants should be placed in the coolest place to be obtained with partial shade. If the plants will remain without shifting until September, do not shift them, as our experience has shown that they keep best through the hot summer months if rather cramped for pot room. As soon as cool weather comes in fall they begin to grow rapidly, and if judiciously shifted into larger pots as the balls become filled with roots, they will make beautiful plants, from twelve to eighteen inches in diameter, which will flower in profusion from November to May. Although the double varieties are also raised from seed, yet, like nearly all double flowers, quite a proportion of the seed saved from double flowers will come single; and though many fine double flowers are thus produced, yet exact types can never be depended on from seed, so that, as a rule, the double kinds, particularly the Double White, which is the kind most valued for winter flowers, are grown exclusively from cuttings or by division. This variety has a tendency to break into from six to twelve crowns or shoots, and the simplest way to divide these up is to fill up to the lower leaves with moss, which quickly induces the crowns or shoots to root into it, and when thus well-rooted, the plant is pulled apart, and each shoot or crown separately potted. This mossing process for division may be done at any season, but it is safest during the spring or fall months: say during April and May in spring, or September and October in the fall. As the Primrose is at all times impatient of heat and disturbance of the roots, this division of the plant had better be avoided during hot weather. The first Double White Primrose was originated by John Henderson, now of Flushing, L. I., but of London in 1836, when the Double White was raised. Mr. Henderson has furnished us the following brief but interesting particulars in regard to its origin: "I raised the Double White Chinese Primrose in 1836, and exhibited it at the Horticultural Society of London in January, 1837, and was awarded the Silver Banksian Medal for it. It was raised in this way: In the winter of 1835–6 we had a fine strain of fimbriated Primulas; and in order to preserve the stock true, I selected the finest, and placed on a shelf near the glass, and during the flowering season constantly impregnated the flowers. The seeds were sown in June, and among the seedlings were about eighteen plants that came with double flowers, both purple and white, some plain-edged, others fimbriated. The one selected as the best is that still in cultivation, and known as the Double White." A double purple, in the same style as the white, was also raised by Mr. Henderson, and is still grown. The Japan Primrose, *Primula Japonica*, is a noble species of recent introduction, bearing flowers of a deep crimson rose, arranged in from three to six whorls, of many flowers each, on a strong, straight stem from one to two feet high. This plant is a favorite in England, but is worthless in our dry, hot climate. Of the genus *Primula* this country furnishes but few species, and they are of little interest to its flora. Dr. C. C. Parry found a beautiful low-growing species in the Rocky Mountains, with purple and yellow flow-

ers. It finds its home in very high latitudes, where it is constantly watered from the melting snow. From this peculiarity it cannot be successfully grown in our houses or borders. There are many other species included in this genus, mostly interesting, but not of special importance. We only add *Primula veris*, the common English Cowslip, and *P. elatior*, the common Ox-lip.

Prince's Feather. See *Polygonum*.

Prince's Feather. See *Amaranthus hypochondriacus*.

Prinos. Winter Berry. The ancient name of the Holly, which some of the species resemble. *Linn. Hexandria-Monogynia.* Nat. Ord. *Aquifoliaceæ*.

Very handsome berry-bearing hardy deciduous shrubs, common from Maine to Virginia and southward. *P. verticillata* is the Black Alder or Winter Berry. It is covered with glossy red berries during most of the winter. *P. lævigata* is the Smooth Winter Berry. The fruit is larger than in the preceding, and ripens earlier in the fall; but the berries are of the same glossy red. These two species are beautiful plants, especially in the winter, and are worthy of a place in the shrubbery or on the lawn. They are used in the winter for decorative purposes, *P. glabra* is the Ink Berry, the fruit of which is black. It is a less desirable plant than the species named above. Professor Gray has placed these plants in the genus *Ilex*.

Privet. See *Ligustrum*.

Promenæa. Derivation of name unknown. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

A small genus of low-growing, very pretty Orchids from Brazil, formerly classed with *Maxillaria*. They are usually grown as curiosities rather than for show; their height rarely exceeds three inches.

Pronaya. Named after *M. Pronay*, a French naturalist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Pittosporaceæ*.

A genus of green-house evergreen climbers from Swan River. *P. elegans*, the best known species, is a showy plant, with terminal clusters of pale lilac flowers. It has the habit of *Sollya*, to which it is nearly allied, but is inferior in beauty. Propagated by cuttings. Introduced in 1837.

Prosartes. From *prosartao*, to hang from; in allusion to the pendent ovules or flowers. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ*.

A small genus of hardy native plants, with yellow, drooping flowers, common in moist, rich woods, from New York, west and south.

Prostanthera. From *prosthekę*, appendage, and *anthera*, anther; connections of the anthers are spurred. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Lamiaceæ*.

Green-house evergreen shrubs from New Holland, remarkable for the strong odor they emit. Their flowers are produced in terminal racemes, but are not of very great beauty. One of the species has long been under cultivation, quite as much for rarity as for beauty. Propagated by seeds or from cuttings.

Prunus. Plum, Cherry. From *prune*, its Greek name. *Linn. Icosandria-Monogynia.* Nat. Ord. *Drupaceæ*.

See *Plum* and *Cherry*.

Psidium. Guava. Derived from *psidion*, the Greek name of Pomegranate. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myrtaceæ*.

An extensive genus of low-growing evergreen trees, confined chiefly to the West Indies and South America. They are much esteemed for their fruit. *P. Guaiava* produces the well-known Guava fruits, so largely employed in the preparation of jellies, a staple article of West Indian commerce. The fruit is small, not unlike an Orleans Plum. It is juicy, and in flavor somewhat resembles a Strawberry.

Pteris. Brake. From *pteryx*, a wing; the shape of the fronds or leaves. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ*.

A very extensive genus of Ferns, widely distributed over the temperate and tropical regions, and differing as widely in character. The genus includes the common *Brake* or *Bracken*, and the beautifully variegated *P. argyrea* is one of the most valued plants for green-house or conservatory decoration. *P. tricolor* is one of the most beautiful Ferns, but, from the difficulty in growing it, is rarely met. These two are natives of the East Indies. There are several other species in common cultivation. They are all propagated from spores.

Ptychosperma. Derivation of name not given. *Linn. Dioecia-Polyandria.* Nat. Ord. *Palmaceæ*.

A genus of elegant Palms with pinnate leaves, natives of the Eastern Archipelago. *P. Seemani* is a very beautiful dwarf Palm, well adapted for table and general decorative purposes. The leaves somewhat resemble those of the *Caryota* in appearance, and are of a bright green color. This Palm never attains large dimensions; the stem, when fully developed, is about an inch in diameter, and is used, on account of its strength and straightness, for spears by the natives of New Guiana, from whence it was received. Propagated by seed.

Pulmonaria. Lungwort. So named from the supposed medicinal properties in diseases of the lungs. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ*.

An extensive genus of hardy herbaceous perennials, common in the temperate regions of both hemispheres. They are showy border plants, with flowers of various shades of blue. They grow freely in any good rich soil, and are increased by seeds or root division. This is placed in *Mertensia* by Professor Gray.

Pulsatilla. A synonym of *Anemone patens*, var. *Nuttalliana*.

Pultenæa. Named after *W. Pulteney, M.D.*, a botanical author. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ*.

Green-house, yellow-flowered, evergreen shrubs from New Holland. Of the fifty or sixty species that make up this genus, but two or three have been introduced into the green-house, and these are only to be found in the more extensive collections.

Pumpkin. *Cucurbita Pepo*. A species of gourd; but when, where, or how our present varieties originated is past finding out. Three hundred years ago they were made into pies by cutting a hole in the side, extracting the seeds and filaments, stuffing the cavity with apples and spices, and baking the whole.

Punica. Pomegranate. From *punicus*, of "Carthage," near which city it is said to have been first found; or from *puniceus*, scarlet; referring to the color of the flowers. *Linn. Icosandria-Monogynia.* Nat. Ord. *Myrtaceæ*.

The Pomegranate is a very handsome deciduous shrub or low-growing tree, a native of Northern Africa and Western Asia. It thrives

remarkably well in the Southern States, where it is extensively grown for ornamental purposes. In the Middle and Northern States it is grown in pots or tubs, and used in summer for ornamenting the border or lawn. There are few species, but several varieties. The double flowered scarlet is the most desirable. *P. nana*, a dwarf double-flowered variety, is a favorite green-house plant, suitable for lawn decoration during summer, requiring the protection of a cool house or cellar during the winter. This species is a native of the East Indies, from whence it was introduced into England in 1723. It has since become naturalized in the West Indies and Southern States. A few years since it was sent out as a new plant. The fruit of the Pomegranate has been highly esteemed for its quality and form from the earliest ages. It was one of the most conspicuous ornaments directed to be used in the construction of Solomon's Temple, and is frequently mentioned in the Bible. All the species are of easy culture, and readily propagated from cuttings of the young wood.

Purple Cone Flower. See *Echinacea*.

Purslane. See *Portulaca*.

Puschkinia. Named after *Count M. Puschkin*, a Russian botanist. *Linn. Hexandria-Monogynia*. Nat. Ord. *Liliaceæ*.

P. scilloides is the only species now known. It is a beautiful little bulbous plant, with light purple flowers, like the small-flowered Scilla, as its pecific name indicates. The leaves grow from the bulb, and stand erect round the stem, as though protecting the flower. It is a native of Russia, and perfectly hardy. Propagated by offsets. Introduced in 1819.

Putty-root. See *Aplectrum*.

Puya. Native name. This genus is the same as *Pourretia*. *Puya* has been substituted for *Pourretia*, as being the older name. *Linn. Hexandria-Monogynia*. Nat. Ord. *Bromeliaceæ*.

A genus of green-house herbaceous perennials and epiphytes, with spikes of white and yellow flowers, like the *Pitcarnia*, which they resemble. They are natives of Mexico and South America. *P. heterophylla* is a very pretty and curious plant, bearing two distinct kinds of leaves: one with tough, broad, horny kinds of leaves, which overlie each other, forming a kind of bulb, extended into narrow, serrated processes about two inches long; the others, which are last formed, are thin, bright green, and lanceolate, more than eighteen inches long. A more recent introduction, *P. grandiflora*, is also a fine plant, and all are interesting. Propagated by seeds or from suckers. Introduced in 1840.

Pyrethrum. Feverfew. From *pyr*, fire; the roots are hot to the taste. *Linn. Syngenesia-Superflua*. Nat. Ord. *Asteraceæ*.

A genus of very interesting plants, mostly hardy herbaceous perennials, which only require planting in the open border and the usual treatment of perennial plants. *P. Parthenium* is the well-known Feverfew of our gardens, and is hardy. It is common throughout Europe and the Caucasus. The Golden Feather, so much used as an edging plant, is a sport from this species. *P. carneum* and its varieties are beautiful hardy plants. The flowers are bright rose and pink, as large as an Aster, and remarkable for the length of time they remain perfect. Many of them are very double. They are natives of the Caucasus, perfectly hardy, and easily propagated by division, or from seed, which

should be sown in June to flower the following season.

Pyrola. Wintergreen. From *pyrus*, a pear-tree; resemblance in the leaves. *Linn. Decandria-Monogynia*. Nat. Ord. *Pyrolaceæ*.

A small genus of native evergreen, low-growing shrubs common in moist, sandy woods throughout the Northern States. *P. rotundifolia*, with its varieties, is the most common, and yields the Wintergreen Berries so much sought after.

Pyrolirion. Flame Lily. From *pyr*, fire, and *lirion*, a lily; alluding to the color and form of the flowers. *Linn. Hexandria-Monogynia*. Nat. Ord. *Amaryllidaceæ*.

A small genus of rare and beautiful Peruvian bulbs, allied to Zephyranthes. The flowers are orange and yellow, produced in July and August, before the leaves appear. They can be grown in the open border. The bulbs require to be kept dry and warm during the winter. If grown in pots in the green-house, they must have rest from December until April. They are increased by offsets. Introduced into England in 1833.

Pyrus. Pear. Also Apple, which see. From *peren*, the Celtic word for pear. *Linn. Icosandria-Monogynia*. Nat. Ord. *Pomaceæ*.

The different kinds of Crabs and Pears are very ornamental flowering plants, independently of the value of the fruit of some of the species. The ornamental kinds are all low trees, admirably adapted for the lawn or the shrubbery, and are all of easy culture. They are propagated by grafting the finer on the more common kinds. To thrive and look well, however, they require an airy situation, and not to be crowded among other trees. Among the kinds most worthy of notice are the following: *Pyrus spectabilis*, the Chinese Crab or Garland-flowering Wild Apple, producing the most showy flowers of the whole genus in May, and as hardy as the common Crab or wild Pear. *P. coronaria*, the Sweet-scented Crab, with large and beautiful pink blossoms, highly fragrant, as is the first. *P. coronarius angustifolia*, the narrow-leaved Sweet-scented Crab, with flowers as beautiful as the former, and with the leaves subevergreen. This and the two preceding kinds have the fruit green when ripe, and fragrant, but it is hardly edible. *Pyrus baccata* and *P. prunifolia*, the two kinds of Siberian Crab, have very showy flowers, and small red or yellow fruit. These are the principal ornamental species of the Crabor Apple kind, unless we except one, the Moscow or Transparent Crab, *Pyrus Astracanica*, which has fruit almost as large as a Golden Pippin, wax-colored when ripe. The Crab, though commonly cultivated for its fruit, as useful for the table, well deserves a place on the lawn as an ornamental plant, from the extraordinary beauty of the fruit, and is sometimes used for that purpose. The ornamental Pears are the following: *P. salvifolia*, which has woolly leaves like those of the Sage, and, like all the Pears, white flowers; this peculiarity, independently of other marks, distinguishing them from the Apples, which have reddish flowers. *P. amygdalæformis* is another ornamental species, which has silvery-white leaves, and fruit shaped like that of the Almond; and to these may be added *P. eleagnifolia*, which has long, narrow, white leaves like those of the Eleagnus, *P. salicifolia*, with long, narrow, silky leaves, like those of the Willow; and

P. nivalis, which has round leaves of a snowy whiteness. All these species have small green fruit not good to eat, but the trees are very ornamental from their shape and the singular color of their foliage. The following kinds of Pyrus belong to the section Aria: *P. Aria* and its varieties, *P. a. angustifolia* and *P. a. cretica*, the White Beam Tree, are valued for the beauty of their leaves, which are green above and white beneath, and for the bright scarlet fruit which they produce in great abundance. *P. vestita*, the Nepal White Beam Tree, is a rare and beautiful object, as its leaves, which are clothed with a thick white wool beneath, are of a large size, and change in autumn to a most beautiful pale yellow. Other ornamental species of Pyrus are as follows: *P. variolosa*, remarkable for the varying forms of its foliage, which is sometimes pinnate, like that of the Mountain Ash, and sometimes deeply lobed and cut, like that of the Hawthorn, or entire and cordate and pointed, like that of the Pear. It is somewhat tender, and thrives best in a sheltered situation, or against a wall. *P. torminalis*, the Griping Wild Service Tree, is remarkable for the beautiful form of its leaves, which, however, are unfortunately very apt to be eaten by insects. The buds are large, of a beautiful green, and very ornamental in the winter season. *Pyrus aucuparia*, the Mountain Ash, is a well-known small tree, beautiful both when in flower and in fruit, and worth cultivating for its foliage alone. *Pyrus Americana*, the American Mountain Ash, resembles the common kind, but has larger leaves and smaller fruit, though it is of a much deeper red. *Pyrus Sorbus*, the common Service Tree, has foliage like that of the Mountain Ash, but larger; and the fruit resembles that of the common Pear but much smaller, and not ornamental, though it is eatable. *Pyrus spuria*, a native of Kamschatka, has leaves like the Elder, and small black fruit; the leaves of this species change in autumn to an intensely deep purple, almost black. There is a pendulous variety, *P. s. pendula*, which is one of the most ornamental of drooping-branched small trees; and, as neither the variety nor the species exceeds twelve or fifteen feet in height, they are admirably adapted for small gardens. The following kinds of Pyrus are shrubs, and very ornamental, both for their fruit and flowers: *P. arbutifolia* has white flowers and black fruit, and the leaves of this become of a beautiful red in autumn; there are six or eight varieties commonly treated as species. All the plants belonging to the genus Pyrus are quite hardy, and may all be raised from seeds, or grafted on the Wild Crab, or Wild Pear, or on the Hawthorn, which, though belonging to the genus Cratægus, is very nearly allied to Pyrus. The most beautiful of all our scarlet-flowering shrubs, now known as *Cydonia Japonica*, was formerly classed in the genus *Pyrus*. Of this species there is also a white variety. The scarlet variety of *Cydonia Japonica* makes a most beautiful hedge plant, looking at a distance like a line of fire.

Q.

Quaking Grass. The common name of *Briza maxima*, etc., which see.

Quamash. See *Camassia esculenta*.

Quamoclit. Cypress Vine. From *kyamos*, a Kidney Bean, and *klitos*, dwarf; the species of this genus resemble the Kidney Bean in their climbing stems, but are less tall. *Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ.*

A somewhat extensive genus of half-hardy climbing annuals and green-house perennials. *Q. vulgaris*, perhaps better known as *Ipomœa Quamoclit*, is the beautiful Cypress Vine of our gardens. Of this species there are three varieties, with scarlet, white, and rose flowers, all natives of the East Indies. The species are quite common in the Southern States, having escaped from the gardens into the fields and hedgerows. These beautiful annuals are not as much grown north of New York as they should be, the difficulty having been to get them started sufficiently early for a satisfactory season of flowering. By sowing the seeds in pots, in the house or in a hot-bed, early in April, they will come forward early, and may be turned out into the open border, when all danger from frost is past. The plants thus started will grow twenty feet high in a season, and be completely covered with flowers for at least three months. The seed may be sown where wanted to grow. If the ground is made fine and rich, and the seeds soaked in hot water before being sown, there will be no difficulty in getting a very fine display, though not of as long duration as if started in pots. *Q. coccinea* is the small-flowered, heart-shaped-leaved Ipomœa, or *Star Ipomœa*, (see *Ipomœa*,) a very free-flowering species from the East Indies. It is perfectly hardy, and difficult to exterminate when once planted.

Quassia. Linnæus applied this name to a tree of Surinam in honor of a negro slave *Quassi*, who used its bark as a remedy for fever, and enjoyed such a reputation among the natives as to be almost worshiped by some, and suspected of magic by others. *Linn. Decandria-Monogynia.* Nat. Ord. *Simarubaceæ.*

Q. amara, the only known species, is a very ornamental, low-growing tree, native of Guiana. It produces long, upright racemes of bright scarlet flowers, the petals of which are curiously twisted together. They flower freely if in a green-house with plenty of heat; their size, however, will not warrant their general introduction. The wood is intensely bitter, and the extract is used as a substitute for hops in making beer. Drinking cups are made from the wood, for the tonic quality it is supposed to impart to the water if allowed to stand in them a short time before drinking. The wood of this tree is the Quassia of commerce.

Queen of the Meadows. See *Spiræa lobata*. Professor Gray gives Queen of the Prairies as the common name of this species; but we think this is a mistake.

Quercitron. See *Quercus tinctoria*.

Quercus. The Oak. From the Celtic *quer*, fine, and *cuez*, a tree; others derive it from the Greek

word *choiros*, a pig; because those animals feed on the acorns. *Linn. Monœcia-Polyandria.* Nat. Ord. *Cupuliferœ.*

An extensive genus of well-known trees, comprising about one hundred and fifty species, chiefly confined to the northern regions of the globe, being rarely met in the Southern Hemisphere. They are mostly trees of large size; a few only may be considered shrubs. A number of the species are evergreen, one of the most valuable of the class being *Q. virens*, or Live Oak, which grows from Virginia southward, and the value of the timber increases, because of its quality, the further south it is found. *Q. alba*, White Oak, *Q. castanea*, Chestnut Oak, and *Q. tinctoria*, furnish the most valuable timber for the mechanic arts. *Q. macrocarpa*, the Over-cup White Oak, and *Q. coccinea*, the Scarlet Oak, are the most beautiful for shade trees. *Q. ilicifolia* is the common Scrub Oak, that rarely attains a height of eight feet. *Q. infectoria*, a native of the Levant, is a very common species, the branches of which are liable to be stung by insects, causing the formation of the Gall Nuts of commerce. All the species are invaluable for timber or fuel, excepting the low-growing kinds. The bark of the species contains large quantities of *tannin*, which gives it a value exceeding that of the timber. *Q. suber*, Cork Oak, a native of Southern Europe and Northern Africa, furnishes the Cork of commerce. The outer layers of bark in this tree increase annually, and

after eight or nine years fall off; but for commercial purposes they are removed one or two years previously. The bark of the tree is removed by incisions round the top and bottom of the tree, and by a long one connecting these two, which allows the bark to be stripped off. This is effected when the bark is most firmly attached to the wood, in order that the innermost layers of bark may not be injured, nor the health of the tree impaired, more than is necessary. The trees furnish a *crop* of bark once in eight or nine years.

Quince. See *Cydonia.*

Quisqualis. From *quis*, who, and *qualis*, what kind; referring to the fact that when the genus was named it was uncertain to what class or order it belonged. *Linn. Decandria-Monogynia.* Nat. Ord. *Combretaceœ.*

A genus of plants indigenous to tropical and sub-tropical Asia and Africa, and consisting of climbing shrubs, with opposite, rarely alternate leaves, and axillary or terminal spikes of flowers. These are very fine plants for the hot-house or a warm green-house, and are great favorites with those who grow them. *Q. Indica*, *Q. glabra*, and *Q. Sinensis* are among the best, bearing brilliant red, orange red, and rose-colored flowers. Propagated from cuttings of young wood. First introduced into England in 1815.

Quitch or **Quick Grass.** The common name for an intolerable pest. See *Triticum.*

R.

Radish. The well-known esculent root of *Raphanus sativus*, which see. The common garden Radish is a hardy annual, entirely unknown in its native state. It is usually credited to China. It has long been held in high esteem, and before the Christian era, a volume was written on this plant alone. The ancient Greeks, in offering their oblations to Apollo, presented Turnips in lead, Beets in silver, and Radishes in vessels of beaten gold. Pliny observes that Radishes grow best in saline soils, or when they are watered with salt water; and hence, he says, the Radishes of Egypt are better than any in the world, on account of their being supplied with niter; modern experience, however, does not allow us to endorse this. He gives some account of the kinds grown at Rome in his day, one of which he describes as being so clear and transparent that one might see through the roots. The Radish was introduced into England during the sixteenth century. Four kinds were cultivated by Gerarde in the latter part of the reign of Queen Elizabeth. Since that time, many new varieties have been introduced and disseminated by European seedsmen and gardeners. The seed is extensively grown in France and Germany, and to those countries we are indebted for our supply more than to any other. For a seed crop, the plants are taken from a seed bed and transplanted when quite small, an operation that can only be carried on profitably where labor is very cheap. When ripe, the plants are cut to the ground and stacked, and allowed to remain so a year before being threshed. If this care is not observed, and the seed threshed out soon after ripening, it will invariably become heated and spoiled, and this is the chief cause of failure in the germination of the seed. The seed retains its vitality a number of years. The varieties of Radish now most prized are: French Breakfast, Early Round Dark Red, Early Scarlet Turnip, Wood's Early Frame, White-tipped Scarlet Turnip, and for winter the Rose Chinese. Radishes are largely grown in the Southern States to be shipped north, as it is a vegetable probably more than any other grown that is appreciated for its earliness. Immense quantities are raised under glass in green-houses, hot-beds, and cold frames in the vicinity of all large cities. It is estimated that upward of twenty acres are raised under glass in the vicinity of New York. A light, rather sandy soil, well enriched with short stable manure, suits them best. Under glass the temperature should not exceed 60° at night, with ten to fifteen degrees higher during the day. The variety most used for forcing is the Dark Red Round.

Raffia. See *Raphia.*

Rafflesia. Patma-wort. Named after *Sir Stamford Raffles*, who discovered the plant in the interior of Sumatra, where it is called ambun-ambun. Nat. Ord. *Rafflesiaceœ.*

A wonderful order of plants, parasitical, and in general appearance resembling some species of Fungi, but, according to the authority of the celebrated English botanist, Robert Brown, it is a true flower, having stamens in one plant

and pistils in another. *R. Arnoldi* was found in the Island of Sumatra about sixty years ago, and was then, as it is now, considered to be one of the greatest wonders of the Vegetable Kingdom. It consists of five fleshy lobes or petals, each three feet across, of a spotted or mottled red color, the center forming a cup-like dish capable of holding six quarts of water. It has the offensive odor of some species of Fungi, and was first supposed to belong to that order from this fact, and its general resemblance to the Fungus class.

Ragged Robin. *Lychnis flos-cuculi.*

Ragged Sailor. See *Polygonum.*

Ragweed. See *Ambrosia trifida.*

Ragwort. See *Othonna* and *Senecio Jacobæa.*

Ramee or Ramie. See *Bohmeria.*

Ramondia. Named after *L. Raymond*, a French botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Gesneraceæ.*

R. Pyrenaica, the only known species, is a very pretty little perennial, growing only three to four inches high, with the flower stalks springing from a dense mass of rough, dark green leaves. The general habit of growth of the plant very much resembles that of a Primrose. It is quite hardy, and admirably adapted for rock-work; but it will grow in the border, where it is not too warm and dry. It begins to flower in May, and continues in bloom nearly the whole summer. It is a native of the Pyrenees, whence it was introduced about 1600. Parkinson describes it as the "Blew Beares Eares with Borage leaves." The flowers, however, are not blue, but pale lilac. Propagated by root division or from seed.

Ramstead. One of the common names of *Linaria.*

Randia. Named after *J. Rand*, a London botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of green-house evergreen shrubs, natives of the East Indies, and allied to *Gardenia.* They are rarely grown as flowering or ornamental plants. The powdered root of some of the species is sold as Indian Cockle, and is used to intoxicate or stupefy fish, which permits their easy capture.

Ranunculus. Crowfoot. From *rana*, a frog; many of the species inhabit marshy places frequented by frogs. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

The species may be divided into two kinds: border flowers and florists' flowers. The latter consist of some hundred of the varieties obtained from the species *Ranunculus Asiaticus*, a native of the Levant, with tuberous roots, which is rather too tender to endure the winter in the open air without some kind of protection. The wild plant grows naturally in Persia, in meadows which are moist during winter and in the growing season, but dry during a great part of summer. The usual season for planting the Ranunculus is November. The roots may be placed about six inches apart each way, covered with two inches of soil, and protected by straw, mats, or rotten tan, during severe frosts. The plants will come into flower in June, and when the leaves wither, the roots may be taken up, dried in the shade, and preserved in a dry place till they are wanted for replanting. As the plant seeds freely, even when semi-double, new sorts without end may be raised from seed, which may be sown in pots or flat pans as soon as it is gathered, and placed in a cold frame. The tubers, if kept dry, will retain their vitality for two or three years; and hence, if roots which should be planted in November are kept out of the ground till the November following, and then planted in pots and protected from frost, and when they appear above ground put into green-house heat, they will flower at Christmas. If not planted till December, they will flower about the end of January; and if not planted till January, they will flower in March. In this way, by always having a stock of old roots, and planting some every month in the year, Ranunculuses may be had in flower all the year round. The common mode of propagating the Ranunculus is by separating the offsets from the larger roots. Several of the species are weeds with us, and common in moist pastures, having been introduced from Europe at an early day. They have become extensively naturalized, so much so as to be a nuisance to farmers in some places. They are popularly known as Buttercups. *R. bulbosus*, a double-flowering species, would be regarded an acquisition to the flower garden if it were half as difficult to get as it is to be got rid of when once established.

Rape. See *Brassica.*

Raphanus. Radish. From *ra*, quickly, and *phainomai*, to appear; alluding to the quick germination of the seeds. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

A very useful and widely grown genus of plants, including the well-known *Radish* of the garden. For culture, etc., see *Radish.*

Raphia. From the native name of the Madagascar species. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

The species forming this genus of Palms are confined to three very limited but widely separated localities: one, *R. tædigera*, being found only on the banks of the Lower Amazon and Para Rivers in Brazil; another, *R. vinifera*, on the west coast of Africa; while the third, *R. Ruffia*, is only known as a cultivated plant in Madagascar and the neighboring islands. All three inhabit low, swampy lands in the vicinity of the sea or river banks, within the influence of the tides. They have stout, unarmed, ringed trunks of no great height, and bear gigantic pinnate, spiny leaves, often fifty or more feet in length, and erect, so that the entire trees are sometimes sixty or seventy feet high. The flower spikes are also of large size and much branched, hanging down from among the leaves, and measuring as much as sixty feet in length, the branches being arranged in two opposite rows, and the ultimate ones bearing the flowers resembling flattened catkins. Both sexes are borne on the same spike. The fruit spikes sometimes weigh as much as two or three hundred pounds, and bear a large number of one-seeded fruits rather larger than eggs, covered with shining, bony, overlapping scales. These Palms furnish material for a great variety of useful purposes, such as the manufacture of baskets, boxes, mats, rope, bags, etc., besides thatch for houses and other uses. While one (*R. vinifera*) produces Palm wine in abundance, another (*R. Ruffia*) has furnished the gardener with his best tying material. This species was introduced from Madagascar into England as long ago as 1820, but it has only been within the past ten years that its great value as a fiber-producing plant has been known outside of its native home. *Raffia*, as a tying material for plants, either in the green-house or the garden, supersedes Cuba bast and Russia matting

to such an extent that these fibers are now rarely used for this purpose. It may be added here, that Dr. Von Martius, the great authority on Palmaceous plants, removed the above mentioned three species from *Sagus*, and placed them together under the generic name *Raphia*. *Sagus Ruffia* and *Raphia Ruffia* are therefore one and the same plant. These Palms require a high, moist temperature for perfect development. Propagated by seeds.

Raspberry. See *Rubus*.

Rattan Palm. See *Rhapis*.

Rattlesnake Grass. See *Glyceria Canadensis*.

Rattlesnake Master. See *Eryngium yuccæfolium*.

Rattlesnake Orchid. See *Pholidota*.

Rattlesnake Plantain. Local name of *Goodyera*, which see.

Rattlesnake Root. See *Nabalus albus*.

Rattlesnake Weed. See *Hieracium venosum*.

Red Bay. See *Laurus Carolinensis*.

Red Bud. See *Cercis*.

Red Cedar. See *Juniperus Virginiana*.

Red Gum Tree. See *Eucalyptus resiniflora*.

Red Hot Poker. See *Tritoma*.

Red Lac. See *Rhus succedanea*.

Red Root or Blood Root. Popular names for the fleshy rhizomes of *Sanguinaria Canadensis*, which see.

Red Root. See *Ceanothus*.

Red Root. See *Lachnanthes*.

Red Snow. See *Protococcus nivalis*.

Red Top. The common name of *Agrostis vulgaris*, which see.

Red Wood. An East Indian dye-wood, the produce of *Pterocarpus santalinus*, which see.

Reed. See *Phragmites*.

Reidia. An honorary name. *Linn. Monœcia-Diandria.* Nat. Ord. *Euphorbiaceæ.*

A genus of about a dozen species of green-house shrubs allied to *Phyllanthus*. They are small bushes, having slender twigs furnished with numerous small, entire leaves, bearing in their axils, either singly or in clusters, small greenish or whitish flowers, tipped with pink. Some of the species are very pretty, though not considered useful flowering plants. They are mostly natives of the East Indies. Introduced in 1864. Propagated by seeds or cuttings.

Reineckia. A complimentary name. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

R. carnea, formerly called *Sanseviera carnea*, the only known species, is a very pretty hardy herbaceous perennial inhabiting the marshy districts of Japan. It has grassy leaves six inches to a foot long, from the midst of which arises a flower stalk three to four inches high, bearing a number of rose-colored, or purple, fragrant flowers, each seated in the axil of a bract. The plants are well adapted for the aquarium or margins of fountains. Propagated by offsets.

Rein Orchis. See *Habenaria*.

Renanthera. From *ren*, a kidney, and *anthera*, an anther or pollen-bag, in allusion to the kidney or reniform shape of the anthers or pollen masses. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids, mostly rare, and exceedingly beautiful. *R. Lowii* is a remarkable species, a native of Borneo. This species grows to a great height, and has leaves from two to three feet long, with pendulous flower stems ten or twelve feet in length, clothed with numerous large, conspicuous flowers, resembling some large insect. It is allied to

Vanda, and requires to be grown in a high, moist temperature. Introduced in 1843.

Reseda. Mignonette. From *resedo*, to calm or appease. The Latins considered its application useful in external bruises. *Linn. Dodecandria-Trigynia.* Nat. Ord. *Resedaceæ.*

For description of this genus see *Mignonette.*

Restharrow. See *Ononis.*

Restrepia. Derivation of name not given. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of epiphytal Orchids from Central America. They are very pretty little plants, with curious, many-colored flowers. They are of easy culture in a cool house. They should be grown in pots, in leaf mould and sphagnum moss. They all flower freely in summer. Propagated by division. First introduced in 1843.

Resurrection Plant. See *Selaginella convoluta.*

Retinospora. Japan Cypress. From *retine*, resin, and *spora*, spore or seed. *Linn. Monœcia-Decandria.* Nat. Ord. *Coniferæ.*

A genus of very beautiful hardy evergreens, mostly dwarf and compact, particularly adapted for lawn decoration. They are closely allied to *Cupressus*, and are propagated in the same manner. The Retinosporas recently introduced from Japan are among the most beautiful of small evergreen trees. They are fine subjects for the lawn, and are hardy in the latitude of New York. They also make very pretty hedges, especially *R. aurea*. They are worthy of being largely planted. Introduced in 1864.

Rhamnus. Buckthorn. From *rham*, a Celtic word, signifying a tuft of branches. *Linn. Pentandria-Monogynia.* Nat. Ord. *Rhamnaceæ.*

An extensive genus of hardy deciduous and green-house evergreen shrubs, the more useful and common being *R. catharticus*, common in Great Britain, where it is much grown as a hedge plant. The fruit of this species was formerly in great demand for its medicinal properties.

Rhaphiolepis. Derivation of name not explained. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Rosaceæ.*

A genus of evergreen shrubs found in China and Japan. They are nearly allied to *Cratægus*, from which they are distinguished by their flowers being produced in panicles instead of clusters. *R. Indica* and its varieties are nearly smooth evergreen shrubs, with short terminal panicles of white or pink-tinted flowers of the size of those of the Hawthorn. They have been introduced into the green-house. *R. Japonica* is a beautiful large-leaved species, forming a bush from six to ten feet high, and commonly cultivated by the Japanese, who plant it either with Azaleas and other bushes, or singly, as it forms a beautiful object when covered with its numerous bouquets of dark crimson flowers. Hardy in the vicinity of New York with slight protection. They are propagated by seed. First introduced in 1864.

Rhapis. From *rhapis*, a needle; referring to the acute awns of the corolla. *Linn. Polygamia-Monœcia.* Nat. Ord. *Palmaceæ.*

A small genus of Palms closely allied to *Chamærops*. They are nearly all natives of East ern Asia, and mostly of dwarf habit and slender growth. One of the species, *R. flabelliformis*, is popularly known as Rattan Palm, and furnishes the walking canes so common on the streets. *R. humilus* is a rare and beautiful species, not often seen in collections. Propagated by suckers. First introduced in 1765.

Rheumatism Root. See *Jeffersonia.*

Rheum. Rhubarb. From *Rha*, the Russian name of the River Wolga, near which the Rhubarb was found. *Linn. Enneandria - Trigynia.* Nat. Ord. *Polygonaceæ.*

Some of the species of this well-known genus have been cultivated from the earliest ages for the medicinal properties they possess. Dioscorides, who was physician to Antony and Cleopatra, wrote on its qualities, and recommended it for use. The Turkish Rhubarb, so largely employed in medicine, is the root of *R. palmatum*, a native of China, and sent to Europe through Russia, by the way of Kiachta. It was formerly imported from Natolia, whence the name Turkey Rhubarb. The Turks get the credit of producing this important article of commerce, when, in reality, it only passes through their country. An inferior article used in the adulteration of this drug is grown throughout Southern Europe. The Rhubarb of our gardens is a hybrid of *R. Rhaponticum*, a native of Asia, but of what particular part is not known, nor the time of its introduction. It was first cultivated in England by Dr. Fothergill in 1778, but did not come into general use as a culinary vegetable until several years later. As a market crop it has only been cultivated about fifty years. Many varieties have been introduced, for which we are chiefly indebted to the English gardeners. Some of the varieties, under high cultivation, produce enormous leaf-stems; the size, however, is largely at the expense of quality. An ornamental species has been lately introduced into England, and flowered last season (1880) in the Botanic Garden at Glasgow, Scotland. The flowers are hid beneath stipules or scales, and these are said to be beautifully colored. It is known as *R. nobile.* Dr. Hooker, speaking of this Sikkim species as he saw it growing wild, says that it has such a singular and showy appearance, that its introduction into cultivation is greatly to be desired. He thus describes the plant: "The individual plants of *R. nobile* are upward of a yard high, and form conical towers of the most delicate straw-colored, shining, semi-transparent, concave, imbricating bracts, the upper of which have pink edges; the large, bright, glossy, shining green radical leaves, with red petioles and nerves, forming a broad base to the whole. On turning up the bracts, the beautiful membranous, fragile pink stipules are seen like red tissue paper, and within these again the short-branched panicles of insignificant green flowers. The root is very long, often many feet, and winds among the rocks; it is as thick as the arm, and bright yellow inside. After flowering the stem lengthens, the bracts separate one from another, become coarse red brown, withered and torn; finally, as the fruit ripens they fall away, leaving a ragged-looking stem, covered with panicles of deep brown, pendulous fruits. In the winter these naked black stems, projecting from the beetling cliffs or towering above the snow, are in dismal keeping with the surrounding desolation of the season." The natives, it is said, eat the pleasantly acid stems, and call them *Chuka. Rhurbarb* is a plant found in every well-appointed garden. It is of the easiest culture, and will grow in open sunshine or partial shade; but for its best development a deep, rich, well-drained soil in open sunshine is indispensable. When wanted for private use a couple of dozen plants, which can be procured

cheaply from almost any nurseryman, is the best way to get a supply; but when wanted in quantity for market purposes, the cheapest way is to sow the seed in March or April in well-prepared and richly manured land in rows four feet apart. When the plants come up so as to have covered the ground, thin them out to two or three inches apart; and again later in the season, say by August, to two feet apart, so that they will now stand two feet between the plants and four feet between the rows. The last thinnings, if needed, may be used for making permanent plantations. Another plan of raising Rhubarb from seed is as follows: about the middle of March sow the seeds thickly in a cold pit or frame, in light, fibrous soil, such as leaf-mould, so that the young plants will make fibers freely, and thus be easily transplanted. One pound of seed will be enough to sow six 3x6 sashes, and will give about one thousand plants. In four or five weeks after sowing the plants will be fit for transplanting, which may be done in richly-prepared beds of six rows each, at a distance of one foot each way. By fall they will have made fine, well-ripened roots, which may be thinned out either in the fall or spring, leaving the plants that stand at four feet between the plants and six feet between the rows. The plants that have not been moved will give a partial crop the next year, or in about fifteen or sixteen months after the seed was sown. The roots lifted out as thinnings should be planted, either in the fall or spring, for a permanent crop, at the same distances apart; but, having been disturbed, they will make a weaker growth, and no crop should be taken the first year of planting, as removing the leaves of course weakens the newly-planted root, which has not yet vigor enough to endure it. The second year after planting, however, a full crop will be obtained, if the ground has been in a proper, well-pulverized, and enriched condition. The most profitable and simple part of Rhubarb growing is by forcing after a supply of large roots has been obtained; and if forcing is to be continued, a succession of such supply should always be on hand, as the roots, after forcing, are worthless. All that is necessary in forcing Rhubarb is to take the large three or four-year-old roots from the open field, which, if well grown, will be from fifteen to twenty inches in diameter, and pack them upright as closely as they can be wedged together, (with light soil shook in to fill the interstices between the roots,) under the stage or benches of the green-house, or in a warm cellar, or, in fact, in any place where there is a growing temperature; say an average of sixty degrees. But little water is needed, and none until the Rhubarb shows signs of healthy growth. There is no necessity for light; in fact, the stems being blanched by being grown in the dark, are much more tender than when grown in the light and air of the open garden, and are therefore more valuable, besides being forced at a season (from January to April) when they are not obtainable in the open ground in the Northern States. Many of our market gardeners and florists, who, once having a supply of Rhubarb roots, pack them under the benches of the green-house, where vegetable or flowering plants are grown, realize nearly as much profit from the space under the stage (usually useless) as on it. It is also forwarded in another way by those who have no green-house. The roots are taken up in the fall and packed

closely together, as is done in forcing, in what is known as a cold pit or sunken frame, which is covered with leaves thick enough to keep out the frost. By March 1st the leaves are all removed, except two or three inches, when sashes are put on the frame or pit. By this forwarding process Rhubarb may be had from three to four weeks earlier than that grown out of doors. We have in this article recommended raising Rhubarb from seed, as it is the cheapest and quickest way; and experience has shown us that the varieties raised from seeds of either the "Victoria" or "Linnæus" come true enough to the originals for all practical purposes. These, however, who are particular to have these kinds exactly correct, can obtain them by division.

Rhexia. Deer Grass, Meadow Beauty. From *rhexis*, a rupture; from its astringent qualities it is supposed to cure ruptures. *Linn. Octandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

A small genus of very pretty hardy herbaceous perennials, common in sandy swamps from New York west and south. The flowers are bright pink, large and showy. The plants do not grow above six or eight inches, but, from their branching habit, completely cover the ground with foliage and flower.

Rhinopetalum. From *rhin*, a nose, and *petalon*, a petal; base of the upper sepal. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

R. Karelini, the only known species, is a small bulbous plant from the Ural Mountains. Its flowers are pale pink, spotted, somewhat resembling the *Fritillaria*. It is inferior in beauty to the majority of its allies. It grows freely if cultivated in the same manner as the Lily. Propagated by offsets. Introduced in 1834.

Rhipsalis. Coral Cactus. From *rhips*, a willow branch; referring to the flexible branches. *Linn. Icosandria-Monogynia.* Nat. Ord. *Cactaceæ.*

Very curious succulent plants, which are natives of South America and the West Indies. As the Opuntias may be said to be all leaves, and the different kinds of tree Cereus all stem, so the Rhipsalis may be said to be all branches; for the whole plant consists of a series of short, round, articulated branches, spreading in all directions. The flowers of this genus differ from those of Cacti generally, in being small and not very handsome. They are generally pale yellow. They require the same soil and treatment as other Cactaceous plants. Propagated by cuttings. The species are all natives of the West Indies and South America. Introduced in 1818.

Rhipidopteris. From *rhipis*, a fan, and *pteris*, a fern; referring to the formation of the fronds. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of Ferns allied to *Polybotrya*, but differing in habit. The species are curious little creeping plants, with small fronds from one to three inches high. They are confined to the West Indies and South America. They are grown in the hot-house.

Rhizophora. Mangrove. From *rhiza*, a root, and *phoreo*, to bear; the branches send down roots like the Banyan Tree. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Rhizophoraceæ.*

The only known species constituting this genus is a large tree inhabiting the muddy swamps close to the sea-shore in tropical climates. Its interesting character is thus described by Dr. Hamilton: "In the economy of Nature the Mangrove performs a most important part, wresting annually fresh portions of the land from the dominion of the ocean, and adding them to the domain of man. This is effected in a twofold manner: by the progressive advance of their roots, and by the aërial germination of their seeds, which do not leave their lofty position till they have assumed the form of actual trees, and drop into the water with their roots ready prepared to take possession of the mud, in advance of their parent stems. The progression by means of the roots is effected by fresh roots, which issue from the trunk at some distance above the surface of the water, and arching down, penetrate the mud, establishing themselves as the pioneers of fresh invasions of the retiring element. In this manner the plants, after their descent from the parent trees, continue during their early years to advance steadily forward, till they have obtained a height of about fifteen feet, and gained a position considerably in advance of their parent trunks. After this fewer additions are made to the roots, but the head begins to expand in every direction, spreading its branches on all sides. These branches, in their turn, send down long, slender roots, like those of the Banyan Tree, (*Ficus Indica*,) which, rapidly elongating, descend from all heights, and, reaching the water, penetrate the mud, becoming in time independent trees. Thus a complicated labyrinth is at length formed." The fruit of the species is edible, and its fermented juice is made into a light wine. In Borneo a coarse, bitter salt is extracted from their aërial roots.

Rhodanthe. From *rhodon*, a rose, and *anthos*, a flower; in allusion to the color of the flowerheads. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A very beautiful genus of half-hardy annuals found in Western Australia. *R. Manglesii* and its varieties have white, rose, crimson, and purple flowers. These plants are admirably adapted for the border in summer or the conservatory or green-house in winter, as they come into flower early, and continue for a long time. The flowers, if gathered when young, and dried in the shade, will retain their beauty during the winter, making them valuable for bouquets of dried flowers. For perfection of growth in the border, the seed should be sown in March in the green-house or a hot-bed, and carefully grown on in small pots until all danger from frosts is past, when they may be turned out into the open border. For winter flowering the seed should be sown in August or September. Introduced by Capt. Mangles in 1832.

Rhodea. See *Rohdea.*

Rhodiola. From *rhodon*, a rose. *Linn. Diœcia-Tetragynia.* Nat. Ord. *Crassulaceæ.*

A genus of succulent plants, separated from *Sedum* on account of their bearing fertile and barren flowers on distinct plants. See *Sedum.*

Rhodochyton. A genus of *Scrophulariaceæ*, differing but little from *Lophospermum*, the calyx being less divided, and the corolla not so open. See *Lophospermum.*

Rhododendron. Rose Bay. From *rhodon*, a rose, and *dendron*, a tree. *Linn. Decandria-Monogynia.* Nat. Ord. *Ericaceæ.*

A genus of well-known evergreen shrubs and low-growing trees, remarkable for their beautiful flowers, and thick, luxuriant, glossy foliage. The species are widely diffused, being indigenous to the United States, Europe, Asia, and the Indies. Some of the species are perfectly hardy, and others require the protection of the

green-house. Of our native species, *R. maximum*, (Great Laurel,) common from Maine to Ohio, is a tall-growing shrub, with leaves from four to ten inches long, very thick and glossy. The flowers are a light rose color, nearly white, with greenish throat, and spotted with yellow or light red. *R. Catawbiense*, common on the Alleghanies from Pennsylvania southward, is perfectly hardy, and flowers most profusely. It seldom grows above four feet high, but forms a symmetrical shrub, exceedingly ornamental for a lawn plant. This species is the parent of all our hardy varieties, having been hybridized with the Nepal species, *R. arboreum*. From this cross there has been raised a great number of beautiful kinds, most of which are hardy in the latitude of New York. The varieties include colors from nearly pure white to dark crimson. All the hardy sorts are of easy culture, growing freely in almost any loamy soil, but they prefer a moist situation, protected from cold winter winds. When first planted they should be mulched with any convenient material that will prevent evaporation and keep the roots moist and cool. Several fine species have been lately introduced from the East, a few of them bearing but little resemblance to the common Rhododendron, one being a climber. The plants are propagated by seeds, cuttings, layers, or grafting.

Rhodotypus. From *rhodon*, a rose, and *typos*, type. *Linn. Polyandria-Tetragynia.* Nat. Ord. *Rosaceæ.*

A genus of *Rosaceæ* from Japan. They were introduced in 1866. *R. kerrioides*, the only species at present known, is a slender-branching, hardy evergreen shrub, remarkable for its large, terminal, pure white flowers. It is well adapted for the lawn, contrasting finely with the Weigela and other hardy ornamental shrubs.

Rhopala. From *Roupala*, the Guianan name. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Proteaceæ.*

A genus of South American trees or large shrubs, having simple or pinnate coarse leaves, conspicuous for their terminal or axillary racemes of yellow flowers, which are often covered with a rich brownish wool. A number of the species are under cultivation in the green-houses, but chiefly in botanical collections.

Rhubarb. See *Rheum.*

Rhus. Sumach. Derived from *rous* in Greek, which is from *rhudd*, a Celtic word signifying red; alluding to the color of the fruit, and also of the leaves of some species in autumn. *Linn. Pentandria-Trigynia.* Nat. Ord. *Anacardiaceæ.*

An extensive genus of deciduous shrubs, natives of the United States, Europe, and Asia. They are all interesting from the beautiful colors their leaves assume in drying off in autumn. The species are more or less poisonous. *R. toxicodendron* and its varieties, commonly called *Poison Ivy* or *Poison Oak*, are about as dangerous as the fabulous Upas Tree of Java. There is also a singular fact connected with this plant that makes it distinctive: some persons can handle it with impunity, while others, from the slightest touch, or even from the wind blowing over the plant, will have their arms, face, and bodies fearfully and painfully swollen by it. The same is true, though in a less degree, when the leaves of Celery or Parsnip are touched by the arms or face when damp. *R venitia*, or *Poison Elder*, has so virulent a sap, that it is said to occasion fever and inflammation in those who cut it down. One of the most beautiful species is *R. cotinus*, or Smok Tree, a native of the south of Europe. It is remarkable for its feathery inflorescence. This species also yields the yellow dye-wood called Young Fustic. *R. vernicifera*, a Japan species, is a small tree, and yields the famous Lacquer so extensively employed by the Japanese for lacquering various articles of furniture and small ware. It exudes from wounds made in the tree, and is at first milky white, but becomes darker, and ultimately black on being exposed to the air. Nothing is known respecting the mode of preparing it; that is kept a profound secret, as one of their sources of wealth.

Rhynchosia. From *rhynchos*, a beak; the keel of the flower is beaked. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

An extensive genus of herbs and under-shrubs, mostly of a twining habit. They are natives of the West Indies, Mexico, South America, and India. They are plants of but little beauty. *R. precatoria* has pretty little half-black and half-scarlet or yellow shining seeds, which the Mexicans string into necklaces and rosaries.

Rhynchospermum. From *rhynchos*, a beak, and *sperma*, a seed. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

R. jasminoides is a very beautiful, free-flowering, and sweet-scented green-house climber, a native of India, China, and Japan. In habit it resembles the *Jasmine*, as its specific name implies. It is a rapid grower, requiring only ordinary green-house culture. A variety with variegated foliage is very ornamental. Propagated by cuttings. Introduced in 1846.

Ribbon Grass. See *Arundo* and *Phalaris.*

Ribes. Currant, Gooseberry. From *Ribas*, the name of an acid plant mentioned by the Arabian physicians, and which is known to be *Rheum ribes. Linn. Pentandria-Monogynia.* Nat. Ord. *Grossulariaceæ.*

Our garden varieties of Currants have all originated from *R. rubrum*, a native of Northern Europe; and the same species is also indigenous to the swamps of New Hampshire, north and west to Wisconsin. The berries of this shrub are uniformly red in their wild state. The white, bronze, and other varieties, have been produced under cultivation. To the Dutch we are indebted for the first endeavors to improve this fruit by cultivation, the nurserymen of other nations having paid but little if any attention to this branch of fruit-culture. At what date any of our choice varieties were produced we are unable to state; but little improvement was made, however, previous to the nineteenth century, though the Dutch cultivated a white Currant in 1729. The Black Currant, *R. nigrum*, is a native of most parts of Europe, and abounds in the woods of Russia and Siberia. Cultivation has added but little to its quality; its taste is peculiar, and to most persons disagreeable. It is used chiefly for jellies. *R. rubrum*, the Red Currant common in our woods, has fruit similar to the above, but smaller. *R. aureum*, the Buffalo or Missouri Currant, is an ornamental shrub, remarkable for the spicy fragrance of its yellow blossoms in early spring. It is widely cultivated, and would be one of the most desirable shrubs, were it not for its tendency to sucker and spread itself beyond bounds. *R. sanguinea* is another ornamental variety, with rich crimson flowers, the plant growing to a height of eight or ten feet. The *Gooseberry*, *R. grossularia*, is a native of the United States, from Virginia northward,

and west to Wisconsin, and also of northern Europe. From this species most of our garden varieties have originated. The natural fruit is small, and has less flavor than the cultivated sorts. The English have made great improvements in the Gooseberry. Their favorite sorts are not adapted to this climate, however, owing to their tendency to mildew. An exception to this, however, is found in Paterson, N. J., where some English mechanics grow it in great perfection. *P. hirtellum* is a smooth-fruited species common in moist grounds from New England to Illinois. Under cultivation this species has been greatly improved, and its varieties are now generally grown in our gardens. There are several species with rough or prickly fruit, common throughout the Northern States; they are, however, of little value for their fruit.

Rib Grass. See *Plantago lanceolata.*

Rice. See *Oryza sativa.*

Richardia. Calla, Egyptian Lily, Lily of the Nile. Named after *L. C. Richard*, an eminent French botanist. *Linn. Heptandria-Monogynia.* Nat. Ord. *Araceæ.*

Calla, the popular name of this genus, was given to it by Pliny. There are but three species, all natives of Africa. The *Calla*, or *Richardia Æthiopica*, is a native of the Cape of Good Hope, and was introduced into England in 1731. It is a well-known plant of easy culture; the only particular attention it requires is constant watering, and as warm a room as can conveniently be given it. The Calla is largely grown for winter flowers, and is of the easiest culture. Although it will grow and flower during the entire season without resting if sufficiently fed by being re-potted, yet it is more profitable to dry it partially off, say from June 1st to October 1st. This is best done by placing the pots on their sides, so as to prevent the rains from wetting the soil, and covering them slightly with hay or moss, so as to keep the sun from drying the roots too much; or, if a position of partial shade can be had, there will be no need of covering the pots. The roots thus rested will flower more abundantly and produce fewer leaves, and thus twice the number of flowers may be obtained from the same space. It is not well to give the Calla too much pot room, else too much foliage is produced. We have found the best method to be not to use too large pots, and to use liquid manure freely. When an excess of leaves occurs, cut them off freely, withholding water somewhat for a week or so after cutting the leaves off. By this method the plants can be grown closely together, and a larger crop of flowers obtained from the same space. The Calla is one of the best of winter-flowering plants for room culture, needing little care beyond abundant water, and an occasional syringing or washing of the leaves, to keep them free from dust. The summer treatment and re-potting will be the same as recommended above. It is also a good plant for a large aquarium. *R. albo-maculata*, a species with beautifully variegated or spotted foliage, makes a showy plant. The flowers are smaller than the Calla, and white, with purple throat. It comes into flower in June, making it valuable for a succession. It is also desirable in a collection of plants with variegated foliage. The species are all propagated by offsets, which should be taken off when the plant is at rest, and grown on in small pots for one season.

Ricinus. Castor Oil Plant. From *ricinus*, a tick; resemblance in the seeds. *Linn. Monœcia-Monandria.* Nat. Ord. *Euphorbiaceæ.*

An extensive genus of tall-growing, half-hardy annuals, natives of Africa and the East Indies. The best known species is *R. communis*, the seeds of which yield Castor Oil. The plant is a native of India, but is now extensively cultivated in the warmer regions of the globe. It is largely grown in Southern Illinois and Missouri, much in the same manner as Indian Corn. The produce of seed per acre is about twenty bushels. It is estimated that those States alone produce annually half a million gallons of oil. There are a number of varieties grown in the garden, differing but little in general appearance, but varying in color and size. It is a grand plant for the center of a sub-tropical bed, the outer circles to be of *Cannas* in variety. The plants are easily grown from seeds, which should be started in small pots in the green-house about the first of March, and turned out as soon as all danger from frost is past. The pomace is used as a manure. Introduced in 1548.

Rigidella. From *rigidus*, stiff; in allusion to the stiffness of the flower stalk when supporting the seed-vessels. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A small but very beautiful genus of plants, natives of Mexico. *R. flammea* is one of the most interesting species. It grows from three to five feet high, with very broad and curiously plicate leaves, which look as though they had been regularly plaited artificially. The flowers are numerous, of a bright flame color, all issuing from one spathe, and opening only one at a time. The plant is of easy culture, requiring in all respects the same treatment as the *Tigridia*. Introduced into Britain in 1838.

Ripogonum. From *ripos*, flexible, and *gonos*, a shoot. *Linn. Hexandria-Monogynia.* Nat. Ord. *Smilaceæ.*

Ornamental green-house evergreen climbers from New Holland. The flowers are white, disposed in axillary clusters, not unlike *Smilax*. Propagated by cuttings. Introduced in 1820.

Rivea. Named after *A. de la Rive*, a Genevan botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Convolvulaceæ.*

Very beautiful green-house evergreen twiners, allied to *Ipomœa*, natives of the East Indies. The ease with which the many annuals of this Natural Order are grown, causes the more tender kinds to be neglected, or lost sight of altogether.

Rivina. Named after *A. Q. Rivinus*, a botanist of Saxony. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Phytolaccaceæ.*

Green-house evergreen shrubs, natives of South America and the West Indies. *R. humilis* is commonly grown in green-houses for its beautiful racemes of little bright scarlet berries. It is called in the West Indies *Rouge Plant*, the juice of the berries being used as a cosmetic. *R. rivularis* is a stronger-growing plant than the above, but in other respects is much the same. Propagated by seeds or from cuttings. Introduced in 1804.

Robinia. Locust Tree, Honey Bean. Named in honor of *Jean Robin*, a French botanist, once herbalist to Henry IV. of France. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

R. pseud-acacia, False Acacia, is the common Yellow Locust, indigenous to the Middle and Southern States. It is extensively grown in many parts of the country for the valuable timber it furnishes, as being the most durable of

all wood for posts, or where it comes in contact with the earth. It is one of our most valuable lumber trees, and is largely used for various mechanical purposes. *R. hispida*, or Rose Acacia, is a handsome shrub, with long racemes of beautiful rose-colored flowers without fragrance; a marked contrast to the foregoing species. It is a native of the Southern States, from Virginia southward. It is commonly cultivated with ornamental shrubs.

Rochea. Named after *M. de la Roche*, a botanical writer. *Linn. Pentandria-Pentagynia.* Nat. Ord. *Crassulaceæ.*

A genus of green-house evergreen succulents, allied to *Crassula*, and requiring the same general treatment. They are natives of the Cape of Good Hope. Several of the species are under cultivation, their singular leaves and bright flowers making them attractive specimens. *R. falcata* is one of the best. Propagated by cuttings.

Rocket. See *Hesperis.*

Rocket Larkspur. See *Delphinium ajacis.*

Rock Cress. See *Arabis.*

Rock Lychnis. See *Viscaria.*

Rock Rose. See *Cistus.*

Rodriguezia. Named after *E. Rodriguez*, a Spanish physician and botanist. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

Epiphytal Orchids, natives of South America. There is but one species generally cultivated, *R. secunda*, which has flower spikes from six to nine inches long, with carmine red flowers arranged on one side. It blooms freely in the autumn and winter months, requiring the same care given the *Cattleya.* Introduced in 1820.

Roella. In honor of *William Roell*, Professor of Anatomy at Amsterdam. *Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

Cape plants, generally with blue flowers, which have somewhat of the dazzling glossy hue of Venus's Looking Glass. The shrubby kinds are of low growth, and rather difficult to propagate; but the annual species are of very easy culture, and only require the usual treatment of half-hardy annuals.

Roffia. See *Raphia.*

Rogiera. In honor of *M. Charles Rogier*, a Belgian statesman. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A small genus of evergreen shrubs from Central America, allied to *Rondeletia.* In general appearance they resemble the *Lauristinus.* The flowers are bright pink. They are very pretty green-house plants. Increased by cuttings.

Rohdea. In honor of *M. Rohde. Linn. Hexandria-Monogynia.* Nat. Ord. *Orontaceæ.*

R. Japonica is the only known species of this genus. It is a green-house herbaceous, nearly aquatic plant, and a very interesting one for the green-house, having dark green foliage and spikes of creamy white flowers, which are succeeded by spikes of showy fruit.

Roman Hyacinth. See *Hyacinth.*

Romeria. Purple Horned-Poppy. In honor of *John James Romer*, Professor of Botany at Landshut. *Linn. Polyandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

This is a very beautiful purple annual flower; but, unfortunately, its beauty is so very short-lived that it is difficult to find a perfect flower, as one or two of its petals drop almost as soon as the flower expands. It is quite hardy, and only requires to have its seeds sown in the open border in April.

Rondeletia. In honor of *William Rondelet, M.D.*, a famous natural historian of Montpellier. *Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

Beautiful hot-house plants, with white, blue, or reddish flowers, natives of the East and West Indies. *R. odorata*, which is the most common, has terminal corymbs of scarlet flowers greatly resembling those of *Ixora coccinea.* The flowers are produced in great abundance. One of the best known in our collections is *R. speciosa*, bearing orange scarlet flowers freely. Propagated by cuttings. Introduced in 1752.

Rosa. Rose. From the Celtic *rhod*, red, the prevailing color of the flowers. *Linn. Icosandria-Polygynia.* Nat. Ord. *Rosaceæ.*

We find mention of the Rose in the earliest writings, both sacred and profane. So invariably have the writers seemingly been intoxicated with its beauty that they have entirely forgotten or ignored its early history and culture, leaving us in profound ignorance as to the origin of some of our most highly-prized species or varieties. It was undoubtedly very generally esteemed, and used for ornamentation on both public and private occasions. As an instance, it may be mentioned that the Romans put it to a very significant use at some of their private feasts or dinners. A rose was placed over the principal door, and he who passed under it silently bound himself not to reveal anything that was said or done within; hence arose the saying, *sub-rosa*, under the Rose; and even now to tell a friend anything *sub-rosa* implies that he shall not reveal it. The limit of this work will allow but a brief history and description of the various classes. The species, numbering upward of one hundred, are found disseminated throughout America, Europe, Asia, and Africa. Australia, so prolific in rare and beautiful flowers, has not as yet contributed a single species, while Siberia, Iceland, Greenland, and Kamtschatka are fairly represented. China, Persia, and India have furnished some of the finest species. From all this material cultivators have created varieties almost innumerable. From *R. spinosissima*, the type of those indigenous to Great Britain, nearly three hundred varieties have sprung, which are known as Scotch Roses, though these are not as much valued as many other classes. The Cabbage or Provence Rose (*R. centifolia*) is one of the best known and oldest of the family. It is a native of Eastern Caucasus. It is supposed to be the hundred-leaved Rose of Pliny. It was introduced into the British gardens in 1596. More than a hundred fine hybrid varieties have been produced by the French and English gardeners between this and *R. Gallica*, which are known under the general name of Provence Roses. They are all very beautiful and fragrant, and all distinguished by their close, cabbage-like form, the curving inward of their petals, and their slender footstalks, which give a peculiarly graceful and drooping appearance to the fully developed flowers. The Unique Provence is claimed to be of English origin, having been observed for the first time in 1777, growing in a cottage garden. It was probably one of those accidental variations of flowers commonly termed "sports," which sometimes take place in plants, one branch, shoot, or sucker producing striped or variegated flowers, while the original remains self-colored. The Unique Provence is pure white, of full size, globular form, and exceed-

ingly fragrant. From this the Striped Provence is said to have been a sport. Its flowers are white, striped with deep rose. It is by no means constant, as some of the flowers will be wholly pink, others pure white, the two being frequently met on the same branch. The Moss Rose, (*R. centifolia muscosa,*) the history of which is unknown, has by common consent been considered an accidental sport from the Provence Rose. This theory is strengthened by the fact that plants produced by the seed of the Moss Rose do not always show moss, probably not more than one in three doing so; those that do not, possess all the characteristics of the Cabbage or Provence Rose. The earliest history we have of it is, that it was sent to England from Holland in 1596, since which time many new kinds have been produced from seed, and from sports of the original. The Crested Moss (*R. cristata*) is a sport accidentally found growing out of an old wall at Friburg, in Switzerland. This class, like the Provence, requires the highest cultivation: a deep, strong, rich loam is required for the perfection of these more than any other class of Roses. The French (*R. Gallica*) is indigenous to the hedges of France and Italy. It is credited with being the *R. Millesiana* of Pliny, and is among the earliest cultivated garden Roses. This section contains a large number of our variegated varieties, all having their parentage in *R. Gallica versicolor.* This family is very extensive, and unsurpassed for perfection of form or richness of color. They are compact, erect-growing plants, producing large, open, flat flowers, borne on stiff, erect flower-stalks, thus forming a marked contrast to the Cabbage Rose. Of this there are probably two hundred varieties. They are extensively grown in the neighborhood of Paris for the purpose of making the Attar of Roses. The Hybrid Provence Roses (*R. centifolia hybrida*) are hybrids between the French and Provence Roses. Nearly all the varieties are remarkable for their large, well-formed, and very fragrant flowers. They are mostly vigorous growers, requiring but little care in cultivation. The Hybrid China Rose, (*R. Indica hybrida.*) This section owes its origin to the Bourbon, China, and Tea-scented Noisette, crossed with the French, Provence, and other summer Roses, and also to the latter crossed with the former. The varieties first obtained from this crossing arose from accident, the effect of which was a systematic effort that resulted in producing some magnificent Roses. Mr. Rivers, a celebrated rosarian, in speaking of these hybrids, remarks: "They give a long continuance of bloom, but never put forth secondary or autumnal flowers. This is a most peculiarly distinguishing trait, and an interesting fact. Impregnate a Bourbon, China, or Noisette Rose, all abundant bloomers, with the farina of a French or Provence Rose, and you entirely take away the tendency of autumnal blooming in their offspring." The plants of this section are of very vigorous habit, and the flowers combine all the properties desired in the Rose, viz., size, form, fullness, and exquisite coloring. The Hybrid Bourbon, (*R. Borboniana hybrida.*) This class owes its origin to the Bourbon Rose, which is itself a hybrid. There is some uncertainty about the crossing; it is supposed to have been *R. Indica* and *R. Damascena.* They are a very beautiful class of Roses, large and rather flat, with rich, velvet-like petals, much darker inside than on the outside of the

flower. They flower moderately well in autumn. The White Rose, (*Rosa alba.*) The original species is a native of the central part of Europe, and was introduced into Great Britain in 1597. The flowers are small; the colors are white, blush, flesh, and pink. They are readily distinguished from all other Roses by the glaucous appearance of the foliage, which appears as if covered with a grayish, impalpable powder, and by the shoots being almost spineless. They are perfectly hardy, and of easy cultivation. A type of this class is finely represented by the well-known variety *Madame Plantier.* The Damask Rose, (*R. Damascena.*) The original species is a native of Syria, and was introduced into Europe in 1573. It is now, as formerly, largely cultivated in the gardens of Damascus for the purpose of making Rose-water, Attar of Roses, etc. Nearly all the Perpetual Roses, now so much sought after, owe their origin to the older members of this family, which may readily be distinguished from other Roses by their rough, spiny shoots, and leather-like leaves. They are all of robust habit, and have large, well-formed flowers. The Sweet Brier (*R. rubiginosa*) is indigenous to many parts of Great Britain, in its native or single state; it has become naturalized in many parts of the United States. Not content with the delightful fragrance of the foliage, art has added several varieties with double bright rose-colored and crimson flowers. The best of them is Celestial Sweet Brier, with flowers very double and fragrant. The Austrian Brier (*R. lutea*) is a native of the north of Italy. Its stems are spiny, and of a reddish-brown color; it has a straggling habit of growth, leaves quite small, and flowers of copper and yellow color. From this species has sprung the Persian Yellow, which is said to have originated in Persia, hence its name; also the Harrison Rose, a variety that originated in this country. These two are as yet the best hardy Yellow Roses that have been produced. The Double Yellow Rose, (*R. sulphurea.*) This Rose is very beautiful in warm climates; but the flowers are produced with so much difficulty that it is rarely met. The origin of this Rose is unknown. It is rarely seen in collections. The Boursault Rose, (*R. Alpina.*) The Alpine or Mountain Rose of the south of France and the Alps is the type from which this very distinct family of Roses sprung. It was originated by M. Boursault, of Paris, in whose honor it was named. They are remarkable for the abundance of flowers they produce. They are perfectly hardy, and well adapted for covering walls or trellises. The Banksian Rose, (*R. Banksiana.*) This Rose, a native of China, was introduced in 1807, and was named in compliment to Lady Banks. There are several varieties, producing immense clusters of white, yellow, or rose-colored flowers. The plant is a rapid climber, beautiful in foliage and graceful in habit. As it is an annual flowering species, and too tender to stand the severity of our winters, even if protected, it does not meet with favor among our Rose-growers. The Many-flowered Rose, (*R. multiflora.*) The original of this was introduced in 1804 from Japan by the celebrated botanist, Thunberg. Growers in France and Italy have since then originated several varieties, of which *R. Grevillei* is a fair representative. They are annual bloomers, but too tender to live out without protection north of Virginia. The Prairie Rose, (*R. rubiflora.*) This family is American, the type being the single-flowering

Climbing Rose of the Prairies, from which have originated several double-flowering sorts. The best known is the Queen of the Prairies. The flowers are light crimson, sometimes striped with white. Though wholly devoid of fragrance, it well deserves a place in a collection. It is perfectly hardy, of the easiest culture, and flowers with great profusion. The origin of the Hybrid Climbing Roses is entirely unknown; and they present traces of so many sections that conjecture on this point is useless. Their hardiness in this climate has not been tested sufficiently to warrant an opinion as to their usefulness here. The Evergreen Rose (*R. sempervirens*) is of Italian origin, though the French have produced many of the newer varieties. In our Northern States it could scarcely be called an "evergreen;" at the South it could. The varieties are among the most valuable of Climbing Roses, being free growers, perfectly hardy, and producing immense clusters in a variety of colors. The Ayershire Rose, (*R. arvensis.*) The origin of this, like many others, is unknown, though it is generally credited to Scotland. There are a number of varieties, all rapid growers, of easy culture, and well adapted for covering large trellises or arbors. The colors are white, rose, blush, etc. They are rather tender for this vicinity. The Hybrid Perpetual or Remontant Rose. This class has distanced all others. In them we have beauty of form, fragrance, depth and variety of color, united with a constitution so vigorous as to endure the severity of our Northern winters. They have been produced by crossing the Hybrid China Roses with different varieties of Chinas and Bourbons, and, to a limited extent, with the Teas. This crossing has resulted in imparting to the more hardy Roses, to some extent, the blooming qualities of the tender sorts without impairing the vigor of the former. It is a mistake to suppose that all Roses in this class are *perpetual* bloomers, as their name would imply. They are, without question, the most valuable for their abundance of bloom in June, and most of them will give an occasional flower during the summer, and in favorable seasons, a fair show in autumn; but to expect *continuous* bloom, as the Chinas and Teas afford, would be a sad disappointment. As a class they are nearly all hardy in the Northern States, and of easy culture, well adapted to be grown either as dwarfs or standards, and can with the greatest certainty be forced into bloom during winter and spring. Of the General Jacqueminot alone, which is a well-known representative of this class, probably ten acres of green-house surface are used for forcing the flowers for winter for the city of New York alone, and in nearly like proportion all over the Union. The Damask Perpetuals. The parentage of this family is difficult to trace. It is generally credited in a great measure to the old white and red Monthly Roses. There is no authority for this supposition, and no hint even as to the other Roses with which they were crossed. They are perfectly hardy, exceedingly fragrant, and free flowering. The Perpetual Scotch, (*R. spinosissima.*) These are hybrids, supposed to have been produced by crossing the Scotch Roses with the Damask Perpetuals. But little success has attended hybridizing these families, as there are but one or two varieties worth cultivating. The Bourbon Rose, or Isle de Bourbon, (*R. Borboniana.*) Roses of this section are remarkable for their autumnal flowering, as they do not flower

well until the first of September, after which they are in continuous bloom until checked by heavy frosts. They derive their name from the Isle of Bourbon, where they originated. The type of the race is said to have been an accidental seedling from a quantity that were planted for a hedge by one M. Peirchon, an inhabitant of the island. From many of its characteristics it is a supposed cross between the common China and one of the old Damask Perpetuals known as the Red Four-season Rose. The first plant was introduced into France in 1822, and at once attracted the attention of the leading Rose-growers at Paris, who commenced its cultivation extensively. Its tendency to vary was such, that within a short time a large number of seminal varieties were produced, from which some of our most desirable Roses have originated. Souvenir de la Malmaison, a deep blush color, (introduced about 1840,) that has yet no equal as an autumnal flowering Rose, and the well-known Hermosa, pink, belong to this class. The Bourbons are distinguished for their fine foliage, compact habit of growth, and for the profusion and long-continuance of their blooming. They require a dry soil, only moderately rich. They are not perfectly hardy north of Washington, unless under very favorable circumstances. The Perpetual Moss, (*R. centifolia.*) There are but few of this class, and those few are entitled to the name only in the sense in which the Hybrid Perpetuals are; that is, with grains of allowance, which will be cheerfully granted for the pleasure a Moss Rose in autumn affords. This section is a cross between the old Moss and some of the autumn-blooming varieties. The continuous or rather second flowering has been produced at some sacrifice of the moss. As a class they are poor growers, requiring a strong, deep, rich soil. A well-known type of this class is James Veitch, deep crimson. The Musk Rose (*R. muscata*) is one of the oldest Roses in cultivation. The original is a native of Madeira, Persia, and the north of Africa. The plants are rapid growers and profuse bloomers, in habit resembling the Noisette, requiring the same protection in winter, and the same treatment in growing. They are late in flowering, not coming into bloom until about the first of September. They receive their name from the fact of their having a peculiar musk-like scent. They are not very hardy in most Rose-growing countries, and, consequently, have received but little attention from growers. The China Rose, (*R. Indica,*) and the Crimson China Rose, (*R. semperflorens.*) These two families are so nearly allied that their history, description, and treatment are the same. They are both natives of China, and were first introduced into Europe in 1789. The two species are the parents from which a rather extensive and interesting family of Roses have sprung. They are of comparatively small growth, which is a distinctive feature in all the progeny. They are very generally known as Bengal Roses. In our climate they are not sufficiently hardy north of Washington to endure the winters without the most careful protection. As garden Roses they are very desirable, being abundant and continuous bloomers; but for cut flowers, they cannot be highly recommended, although the deep crimson color of some of the varieties, as Douglas, for example, makes them grown to a considerable extent, even though the buds are small. The Tea-scented China Rose, (*R. Indica odorata.*)

ROS

Rosa odorata, the type of this section, is a native of China, introduced into England in 1810, and, with the Yellow China or Tea-scented Rose previously introduced into France, became the parents of the best known and most extensively cultivated class in this country. They range through all the shades of yellow, orange, white, blush, pink, purple, and crimson, and have nearly all a marked tea fragrance. From the hundreds of varieties that have been produced it is difficult to determine the varieties that can be named as best. Those we name under the head of "Winter Culture of the Rose" are, perhaps, the best at the date of writing. Until 1877 no true striped Rose had been known to exist; but in that year a sport from the crimson colored Bon Silene came distinctly striped crimson and white, and has continued to hold to this peculiar and beautiful form. It has been appropriately named the "American Banner," and is beginning to create quite a sensation in Europe from its decided novelty of coloring. The whole class of Teas are the most tender of the great Rose family. There is no sure protection for them in the open border without more trouble and expense than the plants would be worth in spring time. Most amateurs have very sensibly given up "protecting" this class of Roses, and have found the more sure, easy, and inexpensive way to get Tea Roses is to procure young plants in spring, not more than four inches high, grown in thumb-pots; these, if planted in a good, strong, rich soil, will produce more flowers during the summer and autumn months than double their number of old plants "kept over." At the present writing we have of the many varieties of Teas several thousands; plants that, when put out in April, could not be seen half way across the nursery rows, but which are now (October) averaging two Roses a day from each plant, and have been for the past two months. For out-of-door culture, treat Tea and all other tender Roses the same as any bedding plant; that is, to depend upon young plants for the season's flowering. Tea Roses can be preserved without difficulty through the winter by taking up, potting, or "heeling" in a box of earth, and keeping them in a cool, dry cellar, where the thermometer will not fall below 25°. When planted out in spring they should be well cut back, and if carefully planted in a rich soil, they will be nearly as good as young plants. In California and nearly all States south of Richmond, the Tea Rose requires no winter protection, and is there seen in the greatest perfection. The Macartney Rose, (*R. bracteata.*) The original of this small group is the single Macartney Rose, a native of China, introduced into England in 1795 by Lord Macartney, from whom it took its name. It is a climbing evergreen Rose. Like most of the China Roses, it is not hardy, and its value for winter flowering is not sufficient to warrant growing it under glass. The Miniature Rose, (*R. Lawrenciana.*) This is a native of China, and was formerly considered by botanists to be a distinct species. Mr. Rivers, of England, whose knowledge of the Rose is second to no one's, says it is but a dwarf variety of the common China Rose, like the Bon de Meaux and Pompon, which are dwarf varieties of *R. centifolia.* "Many plants," he remarks, "that have been long under cultivation have a tendency to produce from seed these pigmy likenesses of themselves." If there is any value in this class, it is as a curiosity for pot culture. The

ROS

Cherokee Rose (*R. lævigata*) is a large-flowered single variety, a native of China. In the Southern States, where it has become naturalized, it is held in high esteem for the graceful habit of the plant, with its vivid green, glossy leaves. The flowers are of the purest waxy white, and are produced in the greatest abundance. It is often used for hedges, and for this purpose few plants could be better adapted. The Noisette Rose, (*R. Noisettiana.*) The type of this group, the old Blush Noisette Rose, is a cross between the Musk Rose and the common China Rose. It was produced by M. Noisette, a French gardener, of Charleston, South Carolina, in 1817. The seed was from the Musk Rose, and the plant partakes of its nature, in its vigorous growth, and, to a limited extent, its fragrance, together with its habit of blooming in clusters: in all other respects it is entirely dissimilar from either parent. From this hybrid, some of our most useful and beautiful half-hardy Roses have originated, embracing several green-house varieties, the most superb of which is the Lamarque (white.) The group contains some of quite dwarf habit; all are noted for producing their flowers in large clusters; this is particularly the case with the Washington, Fellenburgh, and Aime Vibert. The Marshal Neil Rose of this section is, like the General Jacqueminot, most extensively forced under glass for its buds; probably three acres of glass surface are used for it in the vicinity of New York City, but it is likely to be superseded by Perle des Jardins, which is nearly equal to it, and which flowers continually. Though not hardy north, nothing can exceed the beauty of many of this class of Roses in some of the Southern States, where the thermometer does not fall below 20°. The finest of all these is probably the old "Cloth of Gold," now rarely met true, Solfataire being often sold for it. Marshal Neil, another yellow, of late introduction, is very fine, as are also Gloire de Dijon and many others of this section. Standard Roses are produced by budding any desired variety on the common Dog Brier or Manetti stock, the strongest growers known; consequently they give to the Rose the greatest amount of nourishment. In a moist, cool atmosphere, like that of England, Roses are grown in perfection upon standard, half-standard, or dwarf stocks. In this country, the dry, hot winds and scorching sun of summer, or the cold winds of winter, will destroy the vitality of the stock, (particularly if on high standards,) and they rarely live more than three or four years, and in no case will they produce such Roses in this country as in England or France, except in particularly favorable situations, such as a north aspect in our city gardens. We have known them in such positions to do exceedingly well, especially when the stem of the plant had been wrapped around with moss or straw to protect it against the summer sun. Where grown in the greatest perfection in England, stocks are selected that are the best adapted to the soil and situation in which they are to grow; these are planted about the 1st of November, and the highest cultivation possible is given them. In the following July they are budded with the most vigorous buds that can be had from plants put out the previous year *expressly* for the buds. In the following November they cut the shoots back to five or six inches, and in the following spring cut back to one or two buds, which will give the flowering shoots. For exhibition purposes but one bloom is allowed on

each shoot, and that will be the perfect flower; and it is from such flowers, shown at the London exhibitions, that our American travelers give their orders, often paying enormous prices for Roses that, when grown under ordinary treatment here, never fail to disappoint. Were the English amateurs to take their "Standards" from nursery rows, and keep them out of the ground for nearly two months, as is the case with us, and then give them but indifferent treatment, we doubt if their favorable climate would give them a Rose that would be recognized by those who have only grown them properly. *R. rugosa*, a Japanese species, first sent to this country by Commodore Perry in 1855, is one of the handsomest hardy shrubs in cultivation. It forms a sturdy bush from four to five feet high, covered with large, dark green, pinnate, glossy foliage, and producing terminal clusters of ten to twenty flowers, three inches in diameter, of a bright rosy crimson color, and very fragrant. It continues in flower the whole summer, making a very attractive object. If it never produced a flower, it would still be entitled to a prominent place on the lawn for the beauty of its foliage, which scarcely resembles that of the Rose, but is very heavy, rich, and shining, remaining on until late in autumn.

CULTURE OF THE ROSE.

WINTER FORCING.—The intense interest now so generally taken in the culture of the Rose, not only for outside decoration, but for the production of Rose buds in winter, induces us to depart from the general rule adopted in this work, and give a full and detailed account of the methods of cultivation practiced in the vicinity of New York City, which is believed to be unequaled in any other part of the world, particularly in the methods in use for the *winter forcing of the Rose*. For this purpose, strong, healthy cuttings are put in to root any time from September to January. We keep the sand in our cutting benches about 65° or 70°, with the temperature of the house 10° less. Rose cuttings, under these conditions, will root in from twenty to twenty-five days, and are then potted in any good soil in two and a half inch pots, and placed in a green-house having a night temperature of about 50°, with 10° to 15° more in the daytime. The young Roses are regularly shifted into larger pots as soon as the "ball" gets filled with roots, great care being taken that the plants at no time get pot bound. Syringing is done once a day to keep down red spider, and fumigating by burning tobacco stems to kill the Aphis or Green Fly must be done twice a week. With such attention, plants which were put in as cuttings at the season named above, by the middle of July will be from one and a half to two feet in height, with roots enough to fill a six-inch pot. Now, if intended to be grown in pots, the shifting into larger pots should be continued whenever the ball gets filled with roots, (which is usually in about five or six weeks after every shift,) until the 1st of October, when they will have reached a size requiring a pot of eight or nine inches in diameter. They are then in condition for winter forcing, no further shifting being required. But if they are to be planted out on benches, or in solid beds of soil, the planting should be made from the pots from the 15th of July to the 15th of August. There is quite a difference of opinion as to whether the Roses can be best grown in solid beds or on raised benches. We

believe that it really makes but little difference, as we find them grown with nearly equal success by both methods, although the method mainly in use at Madison, N. J., where, at present writing, Roses are probably grown better than anywhere else in the country, is the raised bench system. The green-houses used are about twenty feet wide, and are what is known as three-quarter span; that is, three-quarters of the glass roof slopes to the south at an angle of about thirty degrees, while the other quarter slopes north at an angle of twenty degrees, giving a base space for the benches on which the Roses are to be planted, taking out the walks, of about fifteen feet. The benches may be either a level platform, or divided into four or five platforms, about three feet wide, or so as to be about equal distances from the glass; the bottom of the benches may be from five to six feet from the glass, as desired. There is no necessity for bottom heat for Roses, so that it is best to have the pipes for heating run under the front and back benches of the Rose house, with none under the middle benches. The soil in which the Roses are to be grown need not be more than six or eight inches deep, the boards so arranged as to allow free drainage for the water. The soil is that made from sods cut three or four inches deep from any good loamy pasture land, well chopped up, and mixed with about one-thirtieth of their bulk of pure broken bones and bone dust. It is perhaps best to let the sod be well rotted before being used, although, if not convenient, it will do fresh, if well chopped up. The distance for Roses such as we describe (those that have been grown in six-inch pots, and average twenty inches high) should be one foot each way, so as to get the full benefit of a crop. It is true that, if planted twice that distance, they would be thick enough before spring; but they would not fill up sufficiently until the middle of January if planted much wider than one foot. The temperature at which Roses are grown in winter is an average of 50° to 55° at night, with 10° or 15° higher during the day. Watering is a matter of the first importance, and requires some experience to know what is the proper condition. As a guide, whenever the soil shows indications of being dry on the top, a thorough watering should be given, sufficient to completely saturate the soil. Such a watering will not usually be required more than once in two weeks. A mulching of two or three inches of moss, mixed with one-twentieth part bone dust, is very beneficial. Syringing may be done once a day, sufficient only to moisten the foliage. If done heavily it would keep the soil too wet. Fumigating with tobacco for the suppression of the Aphis (Green Fly) should be done twice a week. The varieties grown are changing every season, and no list we can give to-day is likely to remain as the best ten years hence. The favorite Tea Roses now grown for winter are Perle des Jardins, (yellow;) Niphetos, (white;) Catharine Mermet, (rose;) Madame Welch, (blush;) Cornelia Cook, (white;) Belle Allamande, (pink;) and Bon Silene, (carmine.) There are still a number of the older sorts, such as Safrano, Douglas, and Isabella Sprunt, yet grown; but they are fast giving way to what is known as "fancy" Roses, of which the yellow variety, Perle des Jardins, is a type. Of Climbing Roses, which are grown on the rafters of the green-house, Marshal Neil, (yellow;) Lamarque,

(white;) James Sprunt, (crimson;) Gloire de Dijon, (salmon yellow;) and Red Gloire de Dijon, (carmine,) are the best. Another class of Roses, the Hybrid Perpetuals, particularly the variety known as General Jacqueminot, are now grown in immense quantities. These, we think, will soon be supplanted by a newer class, known as "Hybrid Teas," of which Duchess of Edinburgh, (bright crimson,) La France, (light pink,) Duke of Connaught, (crimson scarlet,) Duchess of Connaught, (deep carmine,) Coquette de Alps, (white,) are at present types. These require an entirely different treatment from the Tea Roses proper, as they are not evergreens, but drop their leaves in fall; and hence, like all deciduous plants, require a rest of at least two months, either by drying or by a low temperature, before they can be forced into flower. To get the Hybrid Perpetual and the Hybrid Tea classes early (say during January) requires special skill and care, but well repays it, as this class of Roses now bring an average of $50 per hundred buds at wholesale, from the 15th of December to January 15th. The method found to be necessary is to grow these Roses on in pots exactly as recommended for the Evergreen or Tea Roses, except that, as they have a tendency to grow tall, the center should be pinched out of the leading shoots, so that from five to six shoots run up, and thus not only make the plant bushy, but, what is of more importance, these slimmer shoots are less pithy and ripen off harder, thus insuring with more certainty a greater production of buds. The plants, if started from cuttings any time from September to January, which is the season we prefer to root them in, will, if properly grown, by August 1st (or at less than one year old) have filled a seven or eight inch pot with roots. Now is the critical point. The plants must be ripened off and rested if a crop of buds is wanted by January and February; so to do that at a season as early as the 1st of September, the plants must be gradually dried off sufficient to make them drop their leaves, though not to so violently wilt them as to shrivel the shoots. This we find easiest done by keeping the plants under glass, as outside the rains start them to grow. A rest of two months is necessary, so that the plants begun to be dried off by the 1st of August may be started slowly by the 1st of October, and those begun to be dried off by the 1st of September may be started, also at as low a temperature as possible, by the 1st of November. One of the Rose-growers of Madison, N. J., had, about the middle of December, 1880, over one thousand plants of General Jacqueminot Rose showing color, averaging eight buds to a plant, for which he averaged seventy-five cents per each bud. So it will be seen, that when this method of forcing this fine class of Roses is a success, it is very profitable. Why it is profitable is from the fact of unusual care and skill being required to have the plants in the proper condition. We may here state, that many failures have resulted in the attempt to grow the Hybrid Tea Roses without resting, notably the *Duchess of Edinburgh* Rose, which was sent out from England some five or six years ago as a "Crimson Tea." The misleading name of "Tea" induced hundreds of florists to attempt its growth under the same conditions as the Safrano or Bon Silene class, and the consequence was in every case almost complete failure. This type evidently partakes more of the Hybrid Perpetual than of the Tea

class, and as they are hardy and deciduous, refuse to bloom in midwinter unless given the rest that their nature demands. Roses, when grown under glass with proper attention to temperature and moisture, are not usually attacked by mildew; but as a preventive it is well to paint the hot-water pipes once every two or three weeks with a mixture of sulphur and lime or sulphur and guano, made of the consistency of whitewash; (the guano or lime is merely to make the sulphur stick better to the pipes.) The fumes of sulphur, as radiated by the heated pipes, is a never-failing means of destroying the germs of mildew, or any other fungoid growth, and also holds in check, to some extent, the Red Spider insect, often so troublesome to the Rose. For the Rose Bug, so destructive to success in Rose growing under glass, there seems no remedy except the slow and unsatisfactory one of catching and killing the insect as soon as it is seen on the leaves. It is not easily observed, as it gets under the leaves and close to the shoots of the plants. Its presence is known by the bitten leaves showing where it is feeding; but even with the greatest diligence enough will usually escape to deposit their eggs in the soil, which, when hatched out to the grub or pupa state, rapidly begin the work of destruction by feeding on the roots. In this stage, all attempts to destroy them have thus far, we believe, failed. The only safety, when the Rose Bug is known to be present in sufficient numbers to injure, is to throw out the plants and start with young ones. We have for two years past adopted this plan exclusively, growing the plants only one year old from cuttings rooted during the fall or winter months, and have since then had no trouble whatever from the ravages of this insect. We know, of course, that there are many Rose houses that are even nine to ten years old that never fail to produce abundant crops, particularly such as Marshal Neil and other climbers; but in such cases it seems to be that the Roses planted either had escaped the visitation of the Rose Bug altogether, or had got so deeply and strongly rooted before being attacked that they could not injure the plants. There is some difference of opinion as to the propriety of shading Rose houses during the hot summer months. We believe that a slight shading is beneficial, and for that purpose use naphtha mixed with a little white lead, just enough to give it the appearance of thin milk. This we throw on the outside of the glass with a syringe. It costs only about twenty-five cents for every thousand square feet. This shading is the best we have ever used; it is just enough to take the glare of sunlight off, without much lessening the light; and though it will hold on tenaciously during the summer, is easily rubbed off in fall.

GARDEN CULTURE OF THE ROSE.

But little need be said on this branch of the subject, all that is wanted being a deep, rich soil, in an unshaded position. For the dry climate of the United States a class of Roses should be grown very different from those grown in England. There the "Remontants" or "Hybrid Perpetuals," in their humid atmosphere, with few exceptions, flower nearly as freely as the "Monthly" Roses do here; but with us experience has shown that, after the first bloom in June, no full crop of flowers is again obtained, unless with the comparatively new class known as the Hybrid Teas, of which "La France" and

"Duchess of Edinburgh" are types; so that, when a continued bloom of Roses is desired during the entire summer and fall months, the class known as monthly (embracing Tea, Bourbon, Bengal, and Noisette) are the best. True, these varieties are not usually hardy, unless in that portion of the country where the thermometer never gets 20° below the freezing point; but they can be saved through the winter in almost any section if pegged down and covered up with five or six inches of leaves or rough litter. This covering, however, should not be done until quite hard frost comes; in the locality of New York, about the 1st week in December. If done sooner, there is danger, if the season is mild, (as it usually is here until December 1st,) that the shoots may be smothered and decay by a too early covering. This same rule we adopt in covering Grape Vines, Clematis, Raspberries, Strawberries, or, in fact, any other plant or shrub that we believe to be benefited by winter protection, as we have never yet seen injury done to half-hardy plants by frost previous to that date. In this matter of covering, the amateur in gardening often errs, first from his anxiety to protect his plants before there is danger in the fall; and next, in his enthusiasm in spring, he is deceived by some warm day in March to uncover what is not safe until April.

Rose Acacia. See *Robinia hispida.*

Rose Bay. See *Rhododendron.*

Rose Apple. See *Eugenia.*

Rose Campion. See *Lychnis.*

Rose Geranium. See *Pelargonium.*

Rosemary. See *Rosmarinus.*

Rose of Heaven. See *Lychnis cœli-rosa.*

Rose of Jericho. See *Anastatica.*

Rosewood. A valuable South American timber, produced from several species of *Dalbergia.* The finest quality is from Rio Janeiro, the product of *D. nigra,* which see.

Rosmarinus. Rosemary. From *ros,* dew, and *marinus,* of the sea; on account of its maritime habitat. *Linn. Diandria-Monogynia.* Nat. Ord. *Lamiaceæ.*

The *Rosemary* is a half-hardy, low-growing evergreen, a native of the south of Europe. It has long been cultivated and valued for the essential oil it yields. The whole plant is aromatic, but the flowers, which are pale blue, are chiefly used in distillation for the oil, which is the principal ingredient of Hungary Water and Eau de Cologne. There are several varieties under cultivation in the gardens, *R. officinalis* being the more common species. Propagated by cuttings.

Rouge Plant. See *Rivina tinctoria.*

Roupellia. Named in honor of *Charles Roupel,* a distinguished botanist of South Carolina. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

This is the far-famed Cream-fruit tree of Sierra Leone, a remarkable and showy green-house climber. In its native home it is a most beautiful and fragrant plant, but under artificial cultivation its pure white flowers are of cream color, and it is in all respects inferior to the flattering accounts given by its discoverer, and not worth the care and attention required to grow it.

Roxburghia. Named after *Dr. Roxburgh,* once director of the Botanic Garden, Calcutta. *Linn. Octandria-Monogynia.* Nat. Ord. *Roxburghiaceæ.*

A genus of evergreen twining plants from India, where they are found six hundred feet long. The leaves are broad and shining. The flowers are produced singly and in small clusters on short axillary peduncles, the color green; they are large and handsome, but very fetid, and this disagreeable feature prevents their introduction into choice collections of hot-house plants.

Royal Bay. See *Laurus nobilis.*

Royal Fern. See *Osmunda regalis.*

Royal Palm. See *Oreodoxa regia.*

Royena. A name given by Linnæus in honor of *Adrian von Royen,* Professor of Botany at Leyden. *Linn. Decandria - Digynia.* Nat. Ord. *Ebenaceæ.*

A genus of tropical shrubs or low-growing trees, some of which are cultivated in the green-house for their beautiful white flowers and glossy foliage. The wood of the species is of the nature of ebony, but not of sufficient size to make it valuable.

Rubia. Madder. From *ruber,* red; the color of the roots. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Galiaceæ.*

The perennial species, which are not remarkable for their beauty, are quite hardy. There are also some half-hardy shrubs, which are worth cultivating in a green-house for their flowers, which are generally yellow. A red dye is derived from the roots of all the species, but principally from those of *R. tinctorium,* which is cultivated as a field-plant in the south of Europe.

Rubus. Bramble, Raspberry, Blackberry. From the Celtic word *rub,* red; in reference to the color of the fruit of some of the species. *Linn. Icosandria-Polygynia.* Nat. Ord. *Rosaceæ.*

The species are mostly shrubs, trailing or erect, with prickly stems, bearing edible fruit. The plants of this family, growing in all situations, and almost every kind of soil, vary greatly, and are consequently very perplexing to the botanist; and so little are authors agreed as to which are species and which merely varieties, that while Bentham reckons only five species, Babington enumerates forty-five. It is this tendency to vary, however, that has given us many of the most esteemed kinds of Blackberries, etc., found in American gardens. The English garden varieties of the Raspberry have all originated from *R. Idæus,* a native of Europe and Mount Ida in Crete, whence its specific name. The fruit of this species is red. Cultivators, however, have obtained varieties with crimson, brown, yellow, and nearly white fruit. The Red Antwerp and the White Antwerp (but which is pale yellow) have been long and favorably known, both in England and the United States; but they do not survive the winter without protection in our Northern States, and for that reason are little grown at the North. There are now a large number of varieties raised from our native species that possess qualities of goodness and hardiness that entitle them to universal cultivation, though they are inferior in quality to the foreign kinds. Brincklé's Orange is an American seedling raised by the late Dr. Brincklé, of Philadelphia. It is, however, of foreign parentage, and consequently tender, but the highest flavored of all Raspberries. The wild Red Raspberry, *R. strigosus,* common in hedges and on the hillsides throughout the Middle and New England States, closely resembles the European species. Its fruit is tender and somewhat watery, but the flavor is fine. Some excellent varieties of this species are under cultivation. The Black Raspberry, com-

monly known as the Black Cap or Thimbleberry, is *R. occidentalis*, a species that is confined wholly to America. It is most common from Virginia north and westward. This species and its varieties bear a pleasant-tasted fruit in the greatest abundance with very little care. They are the least troublesome of all Raspberries to grow, inasmuch as they increase themselves from the tips or ends of the shoots, and produce no suckers. There are several varieties of the Black Caps that bear reddish-crimson fruit. A number of hybrid Raspberries have been recently introduced, partaking somewhat of the Black Cap characteristics, particularly the peculiarity of rooting from the tips of the green shoots; and among these the most striking is the Caroline, which is propagated from suckers as well as from the tips of the shoots, plainly showing its hybrid character. It has been said by those unacquainted with its origin that it is a hybrid between Brinckle's Orange and the Catawissa; but the originator disclaims any such origin, and the plant itself and its fruit show that the Catawissa was not one of its parents. It was raised in 1877 by S. P. Carpenter, of New Rochelle, Westchester Co., N. Y., and is a natural cross between Brincklé's Orange (the seed parent) and the Yellow Cap, a variety of *R. occidentalis*. The plant is thoroughly hardy, a strong grower, and wonderfully productive. The fruit, when ripe, is a fine salmon color, tender, and of excellent quality, though not equal to the Brincklé. Another of S. P. Carpenter's seedlings is the well-known New Rochelle, a seedling of the Catawissa. It is hardy, very productive, and of good quality, being slightly acid. Another Westchester County seedling is the Cuthbert, newly introduced, and which at this time promises to become a leading market variety, being hardy, productive, and of fine quality, and the fruit firm enough to bear long carriage. The Gregg, another recent introduction, of the Black Cap division, was raised in Ohio in 1876, is a very fine large fruit, and has already taken its place as the best of its class as a market berry. The Pride of the Hudson is a fruit of high flavor, of the *Idæus* family, but too tender to grow anywhere except in a sheltered spot in the garden. The Mammoth Cluster and many others are more or less grown, but need not be specially noted here. The *Blackberry*, of which there are several native species, is now largely grown for market, and is a profitable crop. Until the appearance of the New Rochelle Blackberry (sometimes called Lawton) our markets were supplied with Blackberries from the woods. *R. villosus*, the High Blackberry, is the common Blackberry of the country, being found almost everywhere. It is given to variation, and is the parent of nearly all the varieties now under cultivation. The first of these was the New Rochelle, discovered by Mr. Secor growing in a hedge at New Rochelle, Westchester County, N. Y. It is an interesting fact, as showing the estimation in which improved Blackberries were held at that time, that Mr. Secor grew the plants in his garden for about nine years without being able to prevail upon his neighbors to accept a plant as a gift, when at last Mr. Lawton, a shrewd lawyer, still living, took hold of it, exhibited the fruit in New York, got up a sensation, and finally made a litle fortune out of the sale of the plants. Hundreds of acres of it were planted. It is a large, handsome, and excellent fruit, but the plants are at times injured in the

winter at the North. Some years later a clergyman of New Jersey discovered another variety of *R. villosus* growing in the edge of the woods on the Kittatinny Mountains, removed it to his garden, and increased it largely. This was placed in the hands of E. Williams, of Montclair, N. J., who sent it out, and the public were thus put in possession of the famous Kittatinny, which still remains the best fruit of its class. The Boston High Bush is a fruit of fine flavor, but has never been popular as a market berry. The Wilson is an earlier berry than either of the preceding, but not equal to them in quality. A very recent introduction from the West is the Snyder. This is an early kind, immensely productive, and perfectly hardy in all parts of the country. The fruit is smaller than the Kittatinny, but is very sweet, and ripe as soon as colored, which is not true of those above named. We have named the most of those that are valuable for field culture, as far as they have been tried; but there are others about being introduced, of which we as yet know nothing. Among these is the Crystal White, the fruit of which is tender and sweet, but not high flavored. *R. Canadensis*, the Running Blackberry, is popularly known as the Dewberry. The fruit is of an excellent quality, and ripens about two weeks earlier than most of the preceding species. *R. cuneifolius*, or Sand Blackberry, is one of the more common species, growing from two to three feet high, and ripening an abundance of well-flavored fruit in August. This species is common in sandy woods in Southern New York and southward. *R. Chamæmorus*, Cloudberry, is a species with large orange-red fruit, found growing on the White Mountains and similar elevations in the Northern and Eastern States. This species, or something very near it, is also abundant in Lapland, where the fruit is held in high esteem. There are several other species, without, however, any special distinctive features. Propagated by root cuttings, tips of the shoots, or suckers, according to the kind.

Rudbeckia. Cone Flower. Named in honor of *Professors Rudbeck*, father and son, predecessors of Linnæus at Upsal. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Asteraceæ.*

A genus of hardy herbaceous perennials, growing from two to seven feet high, with numerous showy flower-heads of bright yellow, with a black disk in the center. They are natives of the Western States, and becoming common in our meadows, having been introduced by the seed being mixed with the various grass seeds coming from the West, principally from Kentucky. This genus acquired an enviable reputation in Europe as an ornamental flowering plant, and the seed was distributed by the Department of Agriculture at Washington, through the members of Congress, to several of the States that had passed stringent laws against the dissemination of "weeds."

Rudolphia. Named after *W. Rudolph*, a Prussian botanist. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A small genus of very beautiful green-house evergreen twiners, from Mexico and the West Indies. The genus is allied to *Erythrina*, and is remarkable for its brilliant scarlet flowers, produced in axillary racemes. Propagated by cuttings or from seeds.

Rudgea. Commemorative of *M. F. Rudge. Linn. Pentandria-Monogynia.* Nat. Ord. *Cinchonaceæ.*

A genus of green-house shrubs or low-growing

trees, with dense terminal panicles of white flowers, natives of Brazil. *R. macrophylla* is occasionally seen in the green-house. It is also known as *R. leucocephala*. See also *Psychotria*.

Rue. See *Ruta*.

Ruellia. In honor of *John Ruelle*, of Soissons, botanist and physician to Francis I. *Linn. Didynamia-Angiospermia*. Nat. Ord. *Acanthaceæ*.

Herbaceous plants with pretty tube-shaped blue flowers. Some of the species require a hot-house, and others a green-house; but they should all be grown in light, rich soil. They are propagated by cuttings. They are natives of South America and the East Indies. Introduced in 1830.

Rumex. Dock, Sorrel. From *rumo*, to suck; in allusion to the practice among the Romans of sucking the leaves to allay thirst. *Linn. Hexandria-Trigynia*. Nat. Ord. *Polygonaceæ*.

Most of the species are common weeds. The leaves of *R. crispus* are often used as a pot-herb, or "greens." *R. acetosella* is a small-growing species, well known for its acidity, and popularly called *Sorrel*. It is justly regarded as a nuisance.

Running Blackberry. See *Rubus*.

Running Cedar. See *Lycopodium dendroidium*.

Ruscus. Formerly *Bruscus*. Butcher's Broom. From *bruscus*, derived from the Celtic *beus*, box, and *kelen*, holly; Box Holly or Butcher's Broom. *Linn. Hexandria-Monogynia*. Nat. Ord. *Liliaceæ*.

Very curious evergreen shrubs, most of which

bear their flowers and fruit on their leaves. All the species prefer shady situations under the drip of trees, where but few other plants will grow; and they are all readily increased by suckers from their roots, which they throw up in abundance. One of the kinds is sometimes called the Alexandrian Laurel.

Rush. See *Juncus*.

Russelia. Named in honor of *Dr. Alexander Russel*, author of a Natural History of Aleppo. *Linn. Didynamia-Angiospermia*. Nat. Ord. *Scrophulariaceæ*.

A genus of small shrubs and herbaceous plants from Mexico and the Antilles. *R. Juncea* is a very pretty species, with bright scarlet flowers, produced in axillary corymbs. It is a plant of slender habit, and well adapted for basket work. Propagated by cuttings. First introduced in 1812.

Ruta. Rue. From the Greek *rute*, from *ruo*, to flow; probably some reputed medicinal qualities of the plant. *Linn. Octandria-Monogynia*. Nat. Ord. *Rutaceæ*.

R. graveolens is a well-known glaucous-leaved plant, having a very unpleasant smell and a bitter taste. The leaves are nearly blue, and from their peculiar color sometimes produce a good effect in a shrubbery. The flowers are yellowish.

Ruta-Baga. See *Brassica*.

Rye. See *Secale*.

Rye Grass. See *Lolium*.

S.

Sabal. Derivation of name unknown; supposed to be the South American name of one of the species. *Linn. Hexandria-Trigynia*. Nat. Ord. *Palmaceæ*.

This interesting genus of Palms has three species common to the marshy districts of the southern coast, from North Carolina to Florida, which are popularly known as the Palmetto, the emblem on the seal of South Carolina. The most conspicuous of the species is *S. Palmetto*, indigenous to North Carolina and southward. It attains a height of fifty feet, with a diameter of twelve to fifteen inches. The timber is said to be valuable in ship-building, being indestructible in salt water, and not liable to the attack of the ship-worm. The leaves are from five to six feet long, and are used in the manufacture of hats, (Palm leaf,) baskets, and mats, and various other purposes of domestic economy. This species is also called Cabbage Palm, the young, unexpanded leaves constituting one of the most delicious vegetables of the table. The Saw Palmetto is *S. serrulata*, and the Dwarf Palmetto is *S. Adansonii*. The Blue Palmetto belongs to the genus Chamærops, *C. hystrix*, also common on the southern coast.

Sabbatia. Named in honor of *L. Sabbati*, a celebrated Italian botanist. *Linn. Pentandria-Monogynia*. Nat. Ord. *Gentianaceæ*.

A genus of native hardy annuals and biennials, some of which, though rather coarse-growing, are quite ornamental plants, suitable for the border. The flowers are purple, rose, white, red, and yellow. *S. campestris*, a native of Texas, with rose and yellow flowers, is a desirable border plant. *S. angularis* is held in high esteem as a tonic medicine. Being biennials, they are more apt to be lost than either annuals or perennials. Propagated by seeds.

Saccharum. Sugar Cane. From *soukar*, its Arabic name. *Linn. Triandria-Digynia*. Nat. Ord. *Graminaceæ*.

A genus of strong growing, reed-like grasses, indigenous to South America and the East and West Indies. The most important species is *Saccharum officinarum*, a native of India, the Sugar Cane of commerce. We have but little knowledge of the Sugar Cane previous to the thirteenth century. Humboldt tells us it was cultivated in China in the remotest times, and that, under the name of honey, it was known to the Greeks and Romans, though they never cultivated it as an article of luxury. It is supposed that Theophrastus alludes to it when he says that, besides being produced from bees, honey, or sweet juice, it is also the product of canes. The Sugar Cane, however, seems to have been early cultivated in China and India, and from the latter region it was introduced into Europe. Before the discovery of the West Indies in 1492, or of the East Indies in 1497, sugar was manufactured from the Sugar Cane in considerable quantities in the islands of Sicily, Crete, Rhodes, and Cyprus. Soon after the discoveries of Columbus, plantations were established in the West Indies and Brazil, and in the Southern States immediately after their settlement. The plant was first cultivated on the banks of the

Mississippi about the year 1751, when some Jesuits brought it from St. Domingo. These Jesuits settled just above the present site of New Orleans. In 1758 the first sugar-mill was built near that locality by M. Dubreuil on his sugar plantation. That was the commencement of one of the largest and most profitable of American industries. The cane is always propagated from cuttings. Many attempts have been made to raise plants from seed, but they have always proved unproductive. It seems strange that the seed should be of no use, when Nature has been so lavish in bestowing it. From cuttings the plants come to maturity in about two months, and a plantation well cared for and properly manured will last a number of years. The successful planter makes plantings nearly every year for a constant succession. For planting, the ground is prepared and marked out the same as for corn, with rows about four feet apart, and the plants two feet apart in the rows. In cultivation the plow and cultivator are almost wholly used in place of the hoe, as formerly was the custom.

Saccolabium. From *saccus*, a bag, and *labium*, a lip; in allusion to the bagged labellum of all the species. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

An extensive genus of epiphytal Orchids, chiefly natives of India. The "Orchid-Grower's Manual" says: "This genus contains some of the finest Orchids in cultivation. They are very compact in their growth, and are furnished with long, thick, and pendent evergreen foliage. From the axils of the leaves their long, graceful racemes of flowers, which measure from one to two feet in length, are produced. Their habit of growth is the same as that of the *Aërides*, and they require the same treatment, except that they are grown in baskets suspended near the roof, so they may receive all the light possible, and not too much shade, only enough to preserve their foliage from being injured. The various species of this genus mostly inhabit the hottest parts of India, and are found growing on the branches of trees. They are propagated in the same manner as the *Aërides*."

Sacred Bean. See *Nelumbium.*

Sacred Lotus. See *Nelumbium.*

Sad Tree. See *Nyctanthus.*

Safflower. See *Carthamus tinctoria.*

Saffron. See *Crocus sativus.*

Sage. See *Salvia officinalis.*

Sagittaria. Arrow-head. From *sagitta*, an arrow; the leaves of some species resemble an arrow-head. *Linn. Monœcia-Polyandria.* Nat. Ord. *Alismaceæ.*

A genus of handsome green-house and hardy aquatics, with white flowers. Several of the species are common to our marshes, from Maine to Florida. They make beautiful plants for the aquarium or any situation where they can have an abundant supply of water. Some of the more tender varieties have been introduced into the green-house, though rarely.

Sago. See *Oreodoxa, Rhaphis flabelliformis, Raphia,* and *Sagus.*

Sago Palm. See *Cycas revoluta.*

Sagus. From *Sagu*, the Malay name of various Palms. *Linn. Monœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A genus of very beautiful, tall-growing Palms, natives of India and Madagascar. The species furnish a large portion of the Sago of commerce, which is prepared from the soft inner portion of

the trunk. It is obtained by cutting the trunk into pieces about two feet long, the pieces being then split in half, and the soft substance scooped out and pounded in water till the starchy matter separates, when it is drained off with the water, allowed to settle, and afterward purified by washing. These trees produce their flower spikes when about fifteen years old, and the fruit is nearly three years in ripening, after which they die. In order to procure the greatest quantity of Sago, the trees must be cut down immediately after the flower spike makes its appearance. Introduced in 1800.

Sailor Plant. See *Saxifraga sarmentosa.*

St. Agnes's Flower. See *Erinosma.*

St. John's Bread. See *Ceratonia.*

St. John's Wort. See *Hypericum.*

Salicornia. Glasswort. From *sal*, salt, and *cornu*, a horn. *Linn. Monandria-Monogynia.* Nat. Ord. *Chenopodiaceæ.*

A genus of succulent plants common to salt marshes in various parts of the globe. They grow from six to ten inches high, and are much branched and jointed. The various species of this genus grow abundantly on the coasts of Northern Africa and Southern Europe, and yield large quantities of soda, which is employed in making both soap and glass. From its use in the latter the genus derives its common English name, *Glasswort.* The genus is represented in this country by several species, the more common being *S. herbacea*, which is considerably used when young for pickling. On the New England coast it is known by the name *Samphire.*

Salisburia. Maiden-hair Tree. In honor of *Richard A. Salisbury*, a distinguished English botanist. *Linn. Monœcia-Polyandria.* Nat. Ord. *Taxaceæ.*

This very remarkable tree was formerly called *Ginkgo biloba*, Ginkgo being its name in Japan. The only species that has been described, and is to be found in collections of ornamental trees, is *S. adiantifolia*, the leaves resembling in form those of the Maiden-Hair Fern, the botanical name of which is *Adiantum.* This is one of the most beautiful and peculiar of all hardy exotic trees, and one so entirely different in habit and foliage from all others belonging to this order, that, were it not for the flowers and fruit, it would have been difficult to find its proper position in the vegetable kingdom. Without regard to its botanical position, it is beyond question one of the most beautiful trees under cultivation. It attains a height of eighty feet, and has a straight trunk, with a pyramidal head. This tree is a native of China and Japan, and was introduced into England in 1754. It is not yet as common in this country as it should be, on account of its price and scarcity, but is now being more largely propagated and planted. There is a fine specimen on Mr. Manice's place at Queens, L. I., fully fifty feet high, with a full, symmetrical head. There is also a noble specimen on the old Downing place at Newburgh, supposed to be the largest in the States. It is propagated in this country by layers. As it is dicœcious, and there being no male plant in this country, there has been no fruit borne. The fruit is common in Japan, and is highly esteemed for its astringent properties, and for the reputation it has of promoting digestion.

Salix. Willow. From the Celtic *sal*, near, and *lis*, water; in allusion to its place of growth. *Linn. Dicœcia-Diandria.* Nat. Ord. *Saliaceæ.*

The Willow is a large and varied genus of de-

ciduous trees and low-growing shrubs. Some are timber trees, that attain a height of eighty feet, with a diameter of trunk from four to six feet. One of the species, *S. herbacea*, creeps so near the ground that it forms on the Swiss mountains a kind of turf, not rising more than an inch in height. The genus consists of upward of two hundred species, but few of which claim special notice. The Weeping Willow is *S. Babylonica*, a native of the Levant. The Osier or Basket Willow is *S. viminalis*, common throughout Europe. *S. laurifolia* is a low-growing tree or shrub with broad glossy foliage, and is a fine subject for the lawn. All the species grow rapidly in moist places. They are freely propagated from cuttings, every one rapidly making a rooted plant when well firmed in the soil. In this manner the Osier Willow is often grown on banks of rivers and streams to prevent the washing away of the banks. The Colt place, near Hartford, is protected in this way, and a willow-ware factory has been established in connection with it. The cuttings may be twelve to eighteen inches long, inserted half their depth in the soil at a foot or so apart each way.

Salpiglossis. From *salpinx*, a tube, and *glossa*, a tongue; alluding to the tongue-like style in the mouth of the corolla. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

Very beautiful half-hardy annual plants, natives of Chili. The seeds should be sown in February on a slight hot-bed, or in the greenhouse, and the young plants should be planted out in May. When grown in pots it should be frequently shifted, always into a pot only a little larger than the previous one, so as to make the plant bushy. It varies very much according to the soil and situation in which it is grown; and if kept through the winter in a green-house, it will become partly woody. There are many different kinds, some of which are made species by some botanists, but which are now generally allowed to be only varieties. Many gardeners sow the seeds in autumn, and keep the plants in frames all the winter, that they may flower early in spring. They flower freely in autumn, if the seed is sown about May where it is to grow. Introduced in 1824.

Salsify. Oyster Plant. See *Tragopogon porrifolius.* Cultivation same as for Carrot or Parsnip.

Salvia. Sage. From *salvo*, to save; in allusion to the healing qualities of the Sage. *Linn. Diandria-Monogynia.* Nat. Ord. *Lamiaceæ.*

This extensive genus is composed of handsome flowering plants, some of which are hardy and herbaceous, while others are tender, and assume a half shrubby character. They are particularly useful for filling large beds in the flower garden through the summer, where such kinds as *S. patens*, blue; *S. splendens*, scarlet; and *S. fulgens*, red, are very showy. *S. splendens* is a native of Mexico, and was introduced in 1822. It is one of the best for garden decoration. Of *S. splendens*, within the past few years, we have had many singular and beautiful varieties, one being pure white, another scarlet and white striped, and last year, 1879, gave us a distinct crimson color. There are also several beautiful species that were grown in the green-house for the sake of their flowers in winter, but are not much valued now for that purpose. *S. officinalis* is the common culinary herb. There is a very pretty variegated variety of this, grown in the border as an ornamental plant. Propagated by seeds or cuttings.

Sambucus. Elder. From *sambuca*, a musical instrument, which is supposed to have been made of Elder-wood. *Linn. Pentandria-Trigynia.* Nat. Ord. *Caprifoliaceæ.*

The common Elder of our hedgerows is *S. Canadensis*, and it may be considered typical of the order. Few of the species are considered of much value, though *S. Canadensis* is used to some extent to make a domestic wine. The most ornamental of the species is *S. pubens*, which has large, loose panicles of bright scarlet berries. This species is occasionally found in moist high grounds from New York southward. It is very abundant and beautiful on the slopes of the Alleghany Mountains.

Samphire. See *Salicornia.*

Sanchesia. Derivation of name not given. *Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A small genus of evergreen green-house shrubs from Bolivia. There are but two described species. *S. nobilis varieyata*, the only one introduced to any extent into our green-houses, is a very beautiful free-growing plant. The leaves are large, oblong, deep green, and boldly striped with rich golden yellow. The flowers are clear yellow, issuing from crimson bracts. It requires to be grown in a warm, moist house, in light, rich soil. It is readily increased from cuttings.

Sandal-wood. See *Santalum.*

Sanguinaria. Blood-root. From *sanguis*, blood; all the parts of the plant yield a red juice when cut or broken. *Linn. Polyandria-Monogynia.* Nat. Ord. *Papaveraceæ.*

The only described species of this genus is *S. Canadensis*, popularly known as Blood-root. It is a beautiful hardy herbaceous plant, found in the woods throughout the United States. Its flowers are pure white, borne singly on a slender stem about six inches high. It is one of the earliest and most attractive "Wild Flowers." It can be easily transferred to the flower garden. The petals are greatly increased in size and number by good cultivation. It should be planted in rich soil and partial shade.

Sanicula. Sanicle, Black Snakeroot. From *sano*, to heal; supposed healing effects of *Sanicula Europea. Linn. Pentandria-Digynia.* Nat. Ord. *Apiaceæ.*

A genus of weeds of no special interest beyond their supposed medicinal qualities.

Sanseviera. In honor of *M. Sansevier*, a Swedish botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A very singular genus of plants, found chiefly in Africa and the East Indies. They are stemless perennial plants, throwing out runners, and having only root-leaves, which are thick, fibrous, and fleshy, and usually sword or lance-shaped, from two to three feet long, and from two to four inches wide. When young they are marked with pale-colored cross-bands, but ultimately a uniform shining green. *S. Zeylanica* is the species mostly grown in the green-house, the markings being more distinct and positive. The natives call the plant Bow-string Hemp, because of the strong and fine quality of the fiber it yields, and which is used in the manufacture of cordage and fine string. They should be grown in strong heat, with plenty of moisture. Propagated by division. Introduced in 1731.

Santalum. Sandal-wood. From its Persian name, *sandul*, signifying useful. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Santalaceæ.*

The species of this genus are trees or shrubs,

natives of Asia, Australia, and the Pacific Islands. The flowers of *S. album*, the true Sandalwood, are small, and produced in spikes or racemes; but the chief value of the plant consists in the fragrance of the wood, which is so great that the wood is burned for incense, and is said to be destructive to all noxious insects. The same species grown under glass with artificial heat, has very little of the fragrance for which the species is remarkable.

Santolina. Lavender Cotton. From *sanctus*, holy, and *linum*, flax; in allusion to its medicinal qualities. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

A genus of dwarf evergreen shrubs, natives of the south of Europe. Some of the species are valuable bedding plants, and particularly useful in ribbon borders, contrasting finely with plants of dark foliage. Propagated from cuttings.

Sanvitalia. Derivation unknown; probably a commemorative name. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

S. procumbens is a beautiful little Mexican annual, well adapted, from its dwarf and compact habit of growth, for covering a bed in a flower-garden. The flowers are large in proportion to the size of the plant, and they are of a rich brown and yellow. It is quite hardy, and only requires sowing in March or April in the open border. Introduced in 1798.

Saponaria. Soapwort, Bouncing Bet. From *sapo*, soap; the bruised leaves of *S. officinalis* form a lather like soap, when agitated in water. *Linn. Decandria-Digynia.* Nat. Ord. *Caryophyllaceæ.*

A genus of hardy annuals and herbaceous perennials, mostly natives of Europe. One species, *S. ocymoides*, deserves, for its neat habit, and the profusion with which it bears its pretty pink flowers in summer, to be cultivated in every garden. It is a trailing plant, and therefore suitable for rock-work, the front of the borders, or for small beds; and being at the same time quite hardy, and not particular as to soil or situation, it is well adapted for suburban gardens. The double variety of *S. officinalis* is also a showy plant, of the easiest management, and continues to produce its numerous flesh-colored flowers from June to November. This species has become naturalized, until, notwithstanding its beauty, it has in some places become troublesome as a weed.

Sarcanthus. From *sarx*, flesh, and *anthos*, a flower; in allusion to the fleshiness of the flowers. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of epiphytal Orchids, natives of China and the East Indies. The flowers are mostly small, but rather showy. *S. erinaceus* is a beautiful species, with pink and white flowers; lip with purple markings. The flowers are produced freely on drooping spikes. There are several species under cultivation. They succeed best when grown in wooden baskets with sphagnum moss. They require plenty of heat and copious waterings. During their season of rest they may be kept in a cool house, and given but very little water.

Sarcochilus. From *sarx*, flesh, and *cheilos*, a lip; in allusion to the fleshy lip or labellum. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of small epiphytal Orchids from Australia and the East Indies. The flowers are white, or white and yellow. The species are not usually found in collections.

Sarcopodium. A small genus of Orchids, now included in *Bolbophyllum*, which see.

Sarmienta. Named after *Mart. Sarmiento*, a Spanish botanist. *Linn. Diandria-Monogynia.* Nat. Ord. *Gesneraceæ.*

S. repens, the only known representative of this genus, is a dwarf-trailing Chilian herb, very beautiful, and suitable for growing in baskets. It has fleshy, oblong leaves, about an inch long, and numerous drooping, tubular, axillary flowers of a light scarlet color. In all respects it requires the same treatment as the *Gesnera*, and is propagated in the same manner. Introduced in 1862.

Sarracenia. Side-saddle Flower, American Pitcher Plant. Named in honor of *Dr. Sarrasin*, a French physician at Quebec. *Linn. Polyandria-Monogynia.* Nat. Ord. *Sarraceniaceæ.*

A small genus of curious and interesting plants common in boggy situations from Maine to Florida. *S. purpurea* is found in great numbers throughout the New England States, New York, and New Jersey, *S. flava* and *S. rubra* being confined to the Southern States. They have their leaves folded spirally, in the manner of the Pitcher Plant, *Nepenthes*. They are of various heights, some being from four to six inches high, while others are nearly or quite two feet. They have no proper leaf stems, but the foot stalk is lengthened in some cases so as to serve the same end. The flower scape is in all the species longer than the leaves; the flowers are globose, nodding, colors purple, red, or yellow. The curious leaves of these plants are often partly filled with water and drowned insects, which has given them a reputation for usefulness that is to be taken with some grains of allowance. The same may be said of the medicinal properties claimed for them.

Sarsaparilla. See *Smilax*, *Sarza*, etc.

Sarsaparilla, False. See *Aralia nudicaulis.*

Sassafras. The name is said to be a corruption of the Spanish word for *Saxifrage. Linn. Enneandria-Monogynia.* Nat. Ord. *Lauraceæ.*

S. officinale, the only known species, is common throughout the United States. In the more northern parts the tree is small, the diameter rarely exceeding eight inches; but in the Southern States it attains a height of fifty feet, with a diameter of trunk more than two feet. The *Sassafras* is well known by its aromatic, spicy bark, which has stimulant and sudorific properties, and is extensively used in medicine and confectionery. The leaves are also used in the manufacture of "Home-made beer," and also in some sections as a seasoning in sauces, while their mucilaginous properties render them useful in thickening soups.

Satin-wood. A beautiful veneering wood of India, obtained from *Chloroxylon Swietenia*, which see.

Satureia. Savory. From *Ssattar*, the Arabic name for all labiate plants. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

The Summer Savory, *S. hortensis*, is a hardy annual, a native of the south of Europe, and has been well-known in the kitchen garden for the last three hundred years. Having escaped from the garden, it has become naturalized in many parts of this country, especially in Ohio and Illinois. The Winter Savory, *S. montana*, is a hardy evergreen shrub, growing about a foot high, and very branching. It is a native of the south of France, is easily cultivated, and has all the essential properties of the Summer Savory.

Grown from seeds, like Thyme and Sage, or other herbs.

Satyrium. Supposed to be from *satyrus*, a satyr. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

Terrestrial Orchidaceous plants from the Cape of Good Hope. The leaves are very curious from the flat manner in which they spread themselves on the surface of the pot; and the flowers, which are generally yellow, are very handsome. They should be grown in very sandy loam or leaf mould, and they are generally kept in a green-house. They are very apt to damp off if over-watered. Propagated by division.

Savannah Flower. See *Echites suberecta.*

Savin. See *Juniperus sabina.*

Savory. See *Satureia.*

Savoy Cabbage. See *Cabbage.*

Savoy Spinach. See *Spinacia.*

Saxifraga. Saxifrage. From *saxum*, a stone, and *frango*, to break; its reputed medicinal qualities in that disease. *Linn. Decandria-Digynia.* Nat. Ord. *Saxifragaceæ.*

In this very extensive genus, numbering more than a hundred and fifty species, we have some very beautiful hardy perennials, admirably suited for rock-work, or any rough borders, where it is difficult to make most plants grow. Some of the species are valuable for city gardens, particularly *S. umbrosa*, as it will grow in the shade, and is not injured by soot or smoke. The flowers are not brilliant, but the whole plant is showy and vigorous, which well compensates for a short season of flowers of a more showy character. This species is the London Pride of our gardens. *S. sarmentosa*, a native of China, is a desirable plant for hanging baskets, or other rustic designs. It is a pretty plant when in flower. It is popularly known as Strawberry Geranium, Beef-steak Plant, and several other local names without much significance. *S. sarmentosa variegata*, a variety introduced in 1870, has beautiful variegated white and rose-colored markings on the leaves, but is apt to run back to the original species. There are several very pretty species of *Saxifraga* in our woods and waste places, possessing more real beauty than some more sought after. All the species grow with very little care or attention, requiring only a sandy, moist, and shady situation. Propagated from runners and division.

Saxifrage. See *Saxifraga.*

Scabiosa. Scabious, Mourning Bride. From *scabies*, the itch; the common kind is said to cure that disorder. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Dipsaceæ.*

A small genus of hardy annual and herbaceous perennials, mostly natives of Europe and the East Indies. *S. atropurpurea* is the well-known Mourning Bride. All the species grow freely in the garden, and are grown from seeds sown early in spring. The German florists have succeeded in raising some dwarf varieties with very handsome double flowers in a variety of colors, from nearly pure white to dark purple maroon. It is a useful plant for summer flowers.

Scarlet Geranium. See *Pelargonium.*

Scarlet Oak. See *Quercus.*

Scarlet Runner. See *Phaseolus multiflorus.*

Scirpus. From the Celtic *cirs*, rushes. *Linn. Triandria-Monogynia.* Nat. Ord. *Cyperaceæ.*

A genus of sedge grasses, usually found in bogs. This genus, as adopted by some authors, has a wide geographical distribution. *S. lacustris*, the well-known Bulrush, is extensively used for making bottoms of chairs, floor mats, etc., in most parts of Europe, and to a limited extent in this country. *S. Japonica va i ga a*, a beautiful variegated plant, sent home from Japan by Mr. Thomas Hogg, has been referred to this genus. It was subsequently sold to an English florist for distribution. It is a plant of singular beauty. The variegation, like that on *Eulalia zebrina*, instead of running lengthwise, runs at right angles with the leaf; or, in other words, the variegation is horizontal instead of vertical. The *Eulalia zebrina* and the *Scirpus* are the only two known plants that are striped in this remarkable manner. The Scirpus will probably prove to be hardy.

Schizanthus. From *schizo*, to cut, and *anthos*, a flower; in allusion to the irregularly divided corolla. *Linn. Diandria-Monogynia.* Nat. Ord. *Scrophulariaceæ.*

A genus of very beautiful half-hardy annual flowers, which may be sown either in autumn or spring. If wanted to flower in spring, the seed should be sown in August or September as soon as it is ripe, in light, rich mould; and the young plants should be kept in well-drained pots in a frame or green-house during winter. When the seeds are sown in spring, it should be on a hot-bed or in the green-house, and the young plants should be removed into the open air in May, when they will flower in autumn. The plants are much larger in the open ground, and the flowers are finer, if the soil be sufficiently rich and light; but care should be taken to plant them in a sheltered situation, or to tie them to stakes, as the stems are very brittle and liable to be broken off by high winds. The principal kinds of Schizanthus are *S. pinnatus*, with its varieties, all of which have purplish flowers; *S. retusus*, with scarlet and yellow flowers; and *S. Priestii*, with white and yellow flowers. Of these, *S. pinnatus* and its allied species or variety, *S. porrigens*, are the hardiest. The genus is confined to South America, and are mostly found in Chili. Introduced in 1822.

Schizopetalon. From *schizo*, to cut, and *petalon*, a petal; the petals are cut. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

An annual flower, with curiously cut petals, and a strong tap root. It is rather difficult to grow, as it does not bear transplanting well, unless when quite young. It should be sown in spring, and, if possible, where it is to remain. There is but one known species, *S. Walkerii*, a native of Chili. This is rather a singular plant. The flowers are flat, and look as if they had been cut out with a stamp. The color of the flower is white. Introduced in 1822.

Schizophragma. Climbing Hydrangea. Derivation of name not given. *Linn. Decandria-Digynia.* Nat. Ord. *Hydrangeaceæ.*

S. Hydrangeoides is a hardy climbing shrub, introduced from Japan by Thomas Hogg. It is a handsome, rapid-growing plant, with almost all the characters of the *Hydrangea*, having similar white flowers as in the shrubby species. It clings with tenacity to any tree or building by which it may be planted, and attains a height of fifty feet. It remains a long time in flower, making it a conspicuous and desirable plant. It is perfectly hardy. It is rapidly increased by cuttings or by seeds, which, however, have as yet to be procured from its native country, Japan.

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Schizostylis. Derivation of name not known. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

S. coccinea, the only known species, is a very pretty half-hardy Cape bulb, belonging to the Gladiolus family. The leaves are neat and glossy, and the flowers are rosy-scarlet, produced in December. Many efforts have been made to bring this bulb into flower in summer or autumn, which would make it one of the most popular of the natural order to which it belongs. Every effort has, however, failed, and it must consequently be grown in the greenhouse. It is rapidly increased by offsets. Introduced in 1846.

Schlimmia. In honor of *M. Schlimm*, one of M. Linden's plant collectors, who discovered the plant. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

S. jasminodora, the only described species that composes this genus, is an epiphytal Orchid from Central America, remarkable for its extreme fragrance. Its flowers are pure white, borne on flower-stalks about a foot high. It requires to be grown in a warm house.

Schomburgkia. Named after *Sir Robert H. Schomburgk*, a zealous naturalist, and a traveler in British Guiana on account of the Royal Geographical Society. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A very handsome genus of epiphytal Orchids, with large pseudo-bulbs, and strong, leathery leaves. The flower spikes are produced from the apex of the pseudo-bulbs, and are from three to four feet in length, bearing large, rich-colored flowers of singular form. The plants should be attached to a piece of cork and suspended from the roof of the hot-house. They require a high, moist atmosphere in the growing season, and a very dry one when at rest. There are but a few species in this genus, the most desirable being *S. tibicinus*, a native of Honduras. Introduced in 1834.

Schrankia. Sensitive Brier. In honor of *Francis Paula von Schrank*, a famous German botanist, and author of many botanical works. *Linn. Polygamia-Monœcia.* Nat. Ord. *Fabaceæ.*

A small genus of green-house herbaceous perennials, common from Virginia southward. The flowers are small, and not unlike those of the *Mimosa*. These plants are very interesting on account of their leaves, which, like those of the Sensitive Plant, fall at the slightest touch. A few of the species are under cultivation in botanical collections.

Schubertia. Named after *M. Schubert*, a Polish botanist. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

A small genus of hairy, milky, twining shrubs from South America. The leaves are opposite, and the flowers, produced in handsome umbels, are cream-colored and white. They are funnel-shaped, large, and fleshy, and remarkable for their fragrance. They require to be grown in a warm house, in well-drained pots. Propagated by cuttings.

Sciadocalyx. Derivation of name not given. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

S. Warscewiczii, the only known species, was formerly known as *Gesnera Regeliana*. It is a very ornamental green-house plant, a native of New Grenada, and conspicuous for its bright pinkish-scarlet flowers, which are produced freely during the winter. Like all the plants of this natural order, it requires a warm house, plenty

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of moisture, and partial shade to grow it to perfection. It is increased by cuttings or from seeds.

Scilla. Squill. From *skyllo*, to injure; the bulbs of some of the species are said to be poisonous. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

An extensive genus of very pretty bulbous plants, nearly all of which are hardy, and very desirable on account of their early habit of flowering. They should be planted in October, either in the open ground or in pots. They prefer a light, rich soil. Among the more desirable species are *S. campanulata*, a native of Spain, with beautiful blue flowers, of which there are varieties with white and pink flowers. *S. amœna*, with blue flowers, from the Levant, is a very early flowering species. *S. bifolia*, with red, blue, or white flowers. *S. Siberica*, with intense blue flowers. These are all beautiful plants, and well adapted to the open border. They come into flower with the Crocus, and continue in bloom much longer. They may remain undisturbed where planted for a number of years, as crowding from their natural increase does not seem to injure them. *S. Peruviana* is one of the best for pot culture. It is a native of Italy and Spain, and not of Peru, as is generally supposed, and as its name would imply. Its flowers are dark-blue, produced in long racemes. *S. ciliaris* is also desirable for growing in pots. The last two are not hardy. All the species are well worth a place in the garden or green-house. Propagated by offsets.

Scindapsus. From *skinaapsos*, an ivy-like climber. *Linn. Monœcia-Polyandria.* Nat. Ord. *Orontiaceæ.*

A genus of climbing herbaceous plants, natives of India. They have perforated or pinnated leaves, on long, channeled stalks. The species are cultivated in their native countries for their fruit, which is considered to have powerful medicinal properties. They are mostly known under the name *Pothos*. Several of the species are to be found in collections of plants with ornamental foliage. Propagated by cuttings.

Scoke Berry. See *Phytolacca.*

Scolopendrium. Hart's Tongue. From *scolopendria*, a centipede; the appearance of the seed or spore-cases. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A genus of small-growing Ferns, which, with one exception, are hardy. They are common to Great Britain. One of the species, *S. vulgare*, is occasionally met in Central New York and some other localities in this country. They are low-growing plants, requiring a moist, somewhat shaded situation. They are very desirable for pot culture.

Scorpion Grass. A popular name for the *Myosotis*, which see.

Scorpion Senna. See *Coronilla Emerus.*

Scorzonera. Viper's Grass. From *scurzon*, a viper; supposed remedy for the bite of a viper. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

Handsome hardy perennials, with purple, pink, or yellow flowers. They are indigenous to the south of Europe and temperate parts of Asia. One of the species, *S. Hispanica*, is grown to some extent as a garden vegetable, under the name of Black Oyster Plant. Though a perennial, it should be treated like an annual or biennial, and grown in the same manner as Salsify or Carrot, only the seed should not be sown so early, (in the latitude of New York, in the middle of May,) as the plants have a tendency to

"run up" to seed, which renders the roots unfit for use. There are other species under cultivation in their native countries as articles of food, and held in high esteem.

Scorpiurus. Caterpillars. From *scorpios*, a scorpion, and *oura*, a tail; alluding to the twisted form of the legumes. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A small genus of very curious half-hardy annuals, natives of the Mediterranean regions. The flowers are yellow, pea-shaped; the pods have a fancied resemblance to caterpillars, whence their common name. The pods are used to garnish dishes of salads or meats. They may be cultivated in the same manner as *Radishes.*

Scotch Pine. See *Pinus.*

Scotch Thistle. See *Onopordon.*

Scotch Kale. See *Brassica.*

Screw Pine. See *Pandanus.*

Scrub Oak. See *Quercus.*

Scurvy Grass. See *Cochlearia.*

Scutellaria. Skull-cap. From *scutella*, a little saucer; alluding to the form of the calyx. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Lamiaceæ.*

An extensive genus of herbaceous perennials, many of which are indigenous to, and common throughout the United States. A few of the species are suitable for edgings to flower-beds. The hardy kinds have their flowers for the most part blue, and are quite showy. Among the tender or green-house species, *S. Mocciana* is bright scarlet and exceedingly handsome, though often affected with rust. *S. pulchella*, another green-house variety, is crimson. Propagated by cuttings.

Scuticaria. From *scutica*, a whip; leaves round as a whipcord. *Linn. Gynandria-Monogynia.* Nat. Ord. *Orchidaceæ.*

S. Steelii, one of the best known species of this genus, is an epiphytal Orchid from Demerara, with long, thong-like, pendulous leaves, and large, solitary, dingy-yellow, purple-spotted flowers, which grow on very short stalks. There are a few other species of the same general character, but which are rarely cultivated.

Scyphanthus. From *scyphos*, a cup, and *anthos*, a flower; in reference to the shape of the flower. *Linn Polyadelphia-Polyandria.* Nat. Ord. *Loasaceæ.*

A small genus of Chilian and Peruvian plants, allied to *Laosa*, and formerly included in that genus. *S. elegans* is a very pretty twining annual, with bright yellow flowers, produced singly from the axils of the leaves. This is a synonym of *Grammatocarpus*, under which name it is pretty generally known.

Seaforthia. Named after *Francis Lord Seaforth*, a patron of botany. *Linn. Polygamia-Monœcia.* Nat. Ord. *Palmaceæ.*

S. elegans, the only known species, is a native of Australia, and one of the most beautiful of the Palm family. The plant attains a height of thirty feet, with leaves from two to ten feet in length. "The whole plant is perfectly smooth, leaves drooping and feather-like, and is one of the finest subjects in cultivation for the conservatory, green-house, or sub-tropical garden. It may be placed in the open air from the first of June until the first of October." It can be kept in the conservatory or ordinary green-house during winter. It is of rapid growth. Plants one year from seed, when well grown, attain a height of three feet. Propagated by seeds only. Introduced in 1822.

Sea Bean. See *Entada.*

Sea Bean. See *Ormosia.*

Sea Daffodil. See *Pancratium.*

Sea Eryngo. See *Eryngium.*

Sea Heath. See *Frankenia.*

Sea Holly. See *Eryngium.*

Sea Island Cotton. See *Gossypium.*

Sea-Kale. *Crambe maritima.* (See *Crambe.*) Sea-Kale is only cultivated as yet in the United States by private gentlemen employing gardeners, and is very rarely seen in our markets. Still, there is no reason why it may not be cultivated here equally as well as in Europe, as it grows quite as freely during our summer months here as there; and being perfectly hardy, it can be got into condition to blanch—which is the only way in which it is used—the first season, if the following plain directions are strictly followed: Prepare the ground exactly as if for a Cabbage or Cauliflower crop; for it is a plant of the same family, and requires very similar treatment. As early as the ground is dry enough to work in spring, after having well leveled and raked the soil, strike out lines three feet apart, and of any length required, and at these lines draw shallow drills, two or three inches deep. In these drills sow the Sea-Kale seed about as thick as Turnip seed; say one ounce to every hundred and fifty feet of drill. After sowing, and before covering, tread the seed in the drill with the foot, and then cover and level with the rake. After the plants are up, and show the rough leaf, thin out to eight or nine inches apart, and keep cultivating, so as to encourage the best growth possible during the summer. The plants will have completed their growth by November, when the leaves will begin to wither and dry off, as Rhubarb or Asparagus does. When the leaves have become completely dried, it is well to cover with two or three inches of leaves, to prevent them being frozen hard. About the first of December, or first of January, the blanching or forcing process may be begun. To do this, horse manure and leaves must be got together in quantities sufficient to heat, and enough to cover the Sea-Kale to be forced, to a depth of three or four feet; but, preparatory to placing this hot-bed over them, boxes one foot wide and one and a half to two feet high should be placed along the rows of the Sea-Kale, so that the manure is kept off them. Into these boxes the tender white shoots of the Sea-Kale will be forced up and protected from the manure; or, if the expense of boxes is not advisable, strong bush stakes, such as are used for staking Pease, may be used; in fact, anything that is strong enough to prevent the hot-bed pressing against and impeding the growth of the plants. The hot-bed of three or four feet high, placed over the Sea-Kale beds in December or January, will produce the Sea-Kale in the proper blanched condition in from ten to twelve weeks. If not wanted early, it may be blanched by covering with boxes, inverted flower-pots, leaves, or anything that will exclude the light, placed over the plants in spring at the time they start to grow. The young shoots, when cooked, have a flavor something between Asparagus and Cauliflower, but in England they are much preferred to either.

Sea Lavender. See *Statice.*

Sea Onion. See *Ornithogalum.*

Sea-Side Grape. See *Coccoloba.*

Sechium. Choko. From *sekiso*, to fatten; the fruit serves to fatten hogs in the mountains and

inland parts of Jamaica, where the plant is much cultivated. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Cucurbitaceæ.*

S. edule, the type of this genus, is an annual, a native of the West Indies, where it is extensively grown for its fruit, which is considered extremely wholesome, and commonly used as an article of food by all classes. The plant is climbing, supporting itself by tendrils. The fruit is about four inches long, and in substance between succulent and fleshy, and is exceedingly nutritious. Besides its utility as food for man, it is much used for fattening animals. The roots are large, and in substance resemble the *Yam*. They are also used as an article of food.

Sedum. Stonecrop. From *sedere*, to sit; the plants are found growing upon stones, rocks, walls, and roofs of houses. *Linn. Decandria-Pentagynia.* Nat. Ord. *Crassulaceæ.*

A very extensive genus of succulent annual, hardy herbaceous perennial, and evergreen plants, common to almost every country and climate. The hardy species of this genus are well adapted for ornamenting rock-work. Some of the species are remarkable for their variegated foliage, of which *S. Sieboldii variegatum* is one of the prettiest. It grows about one foot high, the leaves being blotched with yellow. It is hardy. It is a variety of *S. Sieboldii*, a native of Japan. There are a number of beautiful species indigenous to this country. All the species are of the easiest culture, and may be grown from cuttings put in the place where they are to grow, or by division. Nearly all the species are worthy of a place in the garden. *S. Telephium* is the common Live-forever of our gardens, a native of Europe, but has escaped from cultivation, and become naturalized in many localities. Most of the species are, from their succulent character, and resisting drought, well adapted for vases, or for covering rough walls or rocks. *S. acre*, a beautiful yellow flowered variety, is a well-known type of the genus, and its variety, *S. acre variegatum*, is even more beautiful. *S. albida* has beautiful white flowers early in spring. Propagated by cuttings or division.

Seeds. *Geographical distribution of the localities where they are grown in the United States.* The subjoined article from the Report of the Department of Agriculture at Washington for 1878 was written by us in that year, and we believe it will be found to be of sufficient interest and importance to warrant a place here. It is entitled, "*Localities Best Suited for Maturing Seed*," and is as follows:

Seed-growing is now getting to be one of the industries of the United States, as it has long been of Europe. Our great variety of latitude, soil, and climate is such that in many things we are now supplying Europe with that which a few years ago we imported; and I think it is safe to predict that in a majority of the seeds of the garden the balance of trade will ultimately be in our favor, as it is now with a majority of the seeds of the farm. I say a majority, for as seed-growing is a matter of latitude, there always will be some kinds that will attain perfection better in Europe than America, particularly such seeds as require a low temperature for perfect development. Hence, whenever a full variety of seeds is attempted to be grown in any one district, either here or in Europe, some crops will be a complete failure and many partially so, for we might as well attempt to "acclimatize" the white bear of Iceland to the

jungles of Africa, or the Bengal tiger to the forests of Norway, as to perfectly develop the seeds of Oats in our Southern States, or the seed of Maize in Northern Europe. Still, we find these attempts are made, and will be made by inexperienced cultivators of seeds, resulting not only in ultimate failure to the grower, but also seriously injuring those to whom such undeveloped seeds are sold. When seeds are grown in a latitude unsuited to their development, they will invariably perpetuate weak progeny. A marked case in point is the Oat, a grain requiring a low temperature for perfect development; hence the superiority of the Scotch or Irish Oats over those grown in the hot and dry summers of the United States. The average weight per bushel of Scotch Oats may be given as forty-four pounds, while the average of Oats grown in the United States is about thirty-two pounds per bushel; yet we find that Scotch Oats weighing forty-four pounds per bushel, when sown in the Middle States under favorable conditions, deteriorate to forty pounds per bushel during the first season from the imported seed; that product being again sown, they still further deteriorate to thirty-five or thirty-six pounds per bushel, which again being sown the third year, falls down to the normal condition of the American Oats, say thirty or thirty-two pounds per bushel. These facts suggest the query whether it would not pay our farmers to import their seed Oats in order to get this improved quality. In my opinion there is no other way to do it; for no matter how carefully the selection of seeds is made, deterioration will take place when the crop is grown under circumstances uncongenial to it. A lifetime spent in the practical study of horticulture, which is close akin to agriculture, has forced me to the conclusion that there is no such thing as acclimatization of plants. The Maize of the American continent resists all attempts to bring the crop to full maturity in the climate of Great Britain, while the Oat (*Avena sativa*) gives comparatively abortive results when grown in our semi-tropical summers. Hundreds of instances in families of plants grown for their fruits, flowers, or seeds, could be given to show that, whenever any attempt is made to change characteristics incident to their natural origin, no perceptible advance is ever made. We all know that in attempts to acclimatize the Fig, the Olive, and the Orange tree in the open air in any locality where the thermometer falls below zero, the complete destruction of the trees would be the result, unless artificially protected. This result is marked and complete, and is universally known, even to such as have not made these matters a special study. But every cultivator of large experience knows that the same rule runs through all grades of vegetation, and that the hardening or acclimatizing of plants has not advanced, as far as the records go. We remember when the Chinese *Wistaria* was grown only in our green-houses; now it is seen everywhere as a hardy vine; but it was in ignorance of its hardy nature that it was ever protected, for it was equally as "hardy" the day of its first introduction as it is to-day. The garden and farm seeds in general use in the United States, I have said, are mainly grown here, though some are better grown in other countries. I will briefly state the localities so far found to be best suited to the greatest development of the different kinds, and the sources from which seedsmen

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draw their supplies. I am indebted for much information on this subject to Mr. William Meggat, seed-grower, of Hartford, Conn., who has given this subject special study for the past twenty years.

Asparagus is grown in New Jersey, on Long Island, and in other portions of New York, and probably other parts of the Northern and Middle States.

Beets are grown in Central New York, Pennsylvania, and Connecticut. The Mangel and Sugar Beets are as yet mostly imported.

Beans (Bush) are mostly grown in New York State, though Michigan, Wisconsin, and Pennsylvania are beginning to grow considerable quantities.

Beans (Pole) are grown in Connecticut, New Jersey, Pennsylvania, Maryland, and Delaware, and States further south.

The *Cabbage*, one of our most important crops, gives its best development near the sea-coast. That grown on rich soils inland is never so satisfactory. Hence our market gardeners and farmers in the vicinity of New York, from experience dearly bought, prefer their Cabbage seed for an early crop to be always grown on the easterly side of Long Island, on the Atlantic coast, to that from any other source. There is considerable grown in Pennsylvania, New Jersey, Connecticut, and Rhode Island, but such has never come to be held in any favor by our market gardeners in the vicinity of New York, who, perhaps, are as critical in such matters as anywhere in the world. But little Cabbage seed is now imported, though it is sold much cheaper in Europe than here; but the crop is too important to risk any consideration of price, for we find that what are grown as the favorite varieties in Europe are not to be compared, for our purpose, with those we have ourselves originated here.

Cauliflower seed is all imported from Europe. All attempts that we have made to grow the seed here have proved nearly abortive. It requires a cool and rather moist climate, and even under the best conditions seeds sparingly, few varieties being imported at less than $6 per pound, and some of the famous early kinds, such as "Snowball," costing nearly $100 per pound to import.

Celery is another important crop of which the seed is raised almost exclusively here; at least that in use among commercial gardeners, many of them growing a few pounds for their own use annually at five times the cost they could buy imported seed for; the danger being so great of getting a spurious sort that they prefer doing so rather than run the risk. Now, however, as the varieties best suited for our climate become known, it is largely grown by our regular seed-growers in New York, Pennsylvania, Connecticut, and New Jersey.

Cucumbers are now grown entirely here, except a few of the fancy sorts. The best seed is grown on the maiden soil of the prairies; and though still grown to some extent in Pennsylvania, Connecticut, New Jersey, and New York, Illinois and Michigan will, in all probability, eventually be the section used to grow all species of the so-called "vine" family of vegetables.

The *Carrot* is grown almost exclusively in the States of New York, Rhode Island, Massachusetts, and Connecticut.

The *Egg-plant*, as yet, is mainly grown in Pennsylvania, New Jersey, New York, and Maryland, but, being a plant of tropical origin, the seeds, no doubt, would be better matured if grown further south.

The *Endive* is all imported from Germany and France.

The *Leek* is partly grown here in the Eastern and Middle States, though some is also imported. The American grown is found to have the greater vitality.

Lettuce, when grown in the Atlantic States, matures best in the vicinity of our large lakes, in New York, Michigan, Wisconsin, and Illinois. California, however, is better fitted for seeding Lettuce than any of the Atlantic States, and large quantities are already being grown there. Quantities are yet imported, but in this case, as in the case of Cabbage and Celery, market gardeners rarely risk imported Lettuce until first proving the variety to be correct.

Melon (Nutmeg) is grown the same as the Cucumber.

Melon (Water) is grown the same as the Cucumber, though rather more of it is grown in States farther south.

Okra is of tropical origin, and the seed is best grown in the Southern States.

Onion is one of the most important of all our vegetable crops grown from seed, and as it rapidly loses its vitality, being of little value the second year, it is now almost entirely grown here. The seed from which to grow Onions of a marketable size is raised mainly in Connecticut, Massachusetts, Rhode Island, and Michigan; while that raised from which to grow Onion sets is mostly grown in Pennsylvania and New Jersey. California has begun to grow Onion seeds to some extent, but as the quality of the seed greatly determines the weight of crop, confidence is not yet fully established in the seed grown there.

Parsley is nearly all imported, as the plant is not quite hardy enough to stand our northern winters, while the hot summers of our Southern States is against its maturing there.

The Parsnip is grown mainly in Pennsylvania, New York, Connecticut, and Rhode Island.

Pease, a most important crop, are mainly grown in Canada and in New York State, on the immediate line of Lake Ontario. Large quantities are yet imported from Britain, but the great bulk used are grown as stated above.

Pepper is grown mainly in New Jersey, Pennsylvania, and New York, but may be grown almost anywhere.

Radish is nearly all imported, or should be; for when grown in this climate, like Oats, it degenerates very fast.

Salsify can be grown anywhere where Lettuce is grown, but as there is no danger of mixing varieties, it is cheaper to import it from France.

Spinach is nearly all imported from England, France, or Germany, as it cannot be so profitably grown here, for the same reason that we cannot profitably grow Parsley, mainly because our winters in the North are often such as to kill off the plants, while in the Southern section the summers are too hot for maturing the seed.

Tobacco is grown in Virginia, Connecticut, and Kentucky, in the United States, and in Cuba and other tropical latitudes. It is sometimes believed to be a peculiarity of Tobacco that location changes the character of the variety. This we are inclined to doubt, and believe

that the varieties grown in Cuba, Connecticut, and Virginia, are botanically distinct, and are such as have been selected as the kinds best suited to the sections in which they are grown.

Tomato seeds are mostly grown in New Jersey, Connecticut, Michigan, and Illinois; but they may be grown with nearly the same success in almost all the States of the Union.

Turnip seeds are grown in Pennsylvania, Rhode Island, Connecticut, and Michigan. A little is grown in Virginia and Maryland, but that is less popular than that grown farther north; not much is now imported.

Pearl Millet is now creating a wide-spread interest. As the plant is tender, we are inclined to think the seeds will be grown exclusively in Florida, Georgia, the Carolinas, and other Southern States, as a long season and high temperature are necessary to fully mature the seed, though the plant as a fodder-plant does well in any section where Maize will grow. Last season, (1878,) under the most favorable conditions, we found that the seed did not ripen with us in New Jersey.

Hungarian Millet, or Hungarian Grass, is entirely different from Pearl Millet, bearing no resemblance to it. The plant is hardy. Seeds are grown in New York, New Jersey, and in many of the Western States.

Timothy Grass is grown largely in Illinois, Wisconsin, and New York.

Blue Grass is grown in Kentucky, Ohio, and other Western States.

Red Top is grown in New Jersey, Kentucky, Ohio, and Rhode Island.

Orchard Grass is grown in Kentucky, Ohio, and the Western States.

Red Clover is grown in Michigan, New York, Ohio, etc.

White Clover is grown in Wisconsin, Illinois, and Ohio, but the greater portion of it is yet imported from Germany and France.

Lucerne, or Alfalfa, is grown in California mainly.

These localities are now the principal ones where seeds of commerce are grown; but every year, to some extent, these latitudes are changing, as we find that other latitudes are better suited for special kinds. For example, the long, dry seasons of California are found to mature many kinds of seeds far better than any section yet tried in the Atlantic States, particularly so in many of the more delicate kinds of flower seeds, that are yet nearly exclusively grown in Germany and France, and sold to us at rates of many times their weight in gold. Tens of thousands of acres are devoted to the raising of flower seeds in Southern Europe, which could probably be far better done in California; but the industry must be one of slow growth, for seeds are different from nearly all other mercantile commodities, inasmuch as no examination can certainly tell whether or not seed will germinate, or, if it does germinate, can it be known whether it is the variety specified until it matures; hence seed merchants dare not purchase from the growers until not only their honesty, but, what is of equal importance, their *knowledge* of the business in which they are engaged is assured.

Segar Plant. See *Cuphea.*

Selaginella. A diminutive of *Selago*, an ancient name of a Lycopodium, from which this genus has been separated. *Linn. Cryptogamia-Lycopodinea.* Nat. Ord. *Lycopodiaceæ.*

A genus of Club Mosses, formerly included in the genus *Lycopodium*, and differing only by their two-ranked stems, and the form of the fruit. Many of the species are of taller growth, and have a more metallic luster. Many of them are very beautiful, and are favorite plants for the fern-house or Wardian case. *S. convoluta* has the fronds curiously curled in and contracted when dry, so as to form a ball somewhat like the Rose of Jericho, but expands again when moistened. It is commonly called the *Resurrection Plant*, and is a native of Panama. *S. mutabilis* has the remarkable property of changing its color during the day: in the morning it is a bright green, but as the day advances it gradually becomes pale, and at night resumes its deeper tint. *S. cæsii* has a beautiful metallic luster richly shaded with blue, resembling the tints of a peacock's feathers. *S. cæsii arborea* has the same beautiful tints as the preceding, but is a climbing plant of grand proportions. These two should be grown in a hot-house. The nature of all demands a moist atmosphere and partial shade. All the species are readily increased by cuttings, which strike root readily.

Selago. From the Celtic *sel*, sight, and *jach*, salutary; supposed medicinal qualities. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Selaginaceæ.*

A very pretty genus of low-growing hardy green-house shrubs from the Cape of Good Hope, with beautiful spikes of rose-colored, yellow, violet, or white flowers. They require but little care or attention, flowering freely in early summer. Propagated by cuttings.

Self-heal. See *Prunella.*

Semecarpus. Marking Nut-tree. From *semeion*, a mark, and *karpos*, fruit; the black, acrid juice of the nut is used by the natives for marking cotton cloths. *Linn. Polygamia-Dicœcia.* Nat. Ord. *Anacardiaceæ.*

A small genus of East Indian evergreen trees, the unripe fruit of which is employed in making a kind of ink. The hard shell of the fruit contains a corrosive juice, which is employed externally by the natives for sprains and rheumatic affections. When dry it forms a black varnish, much used in India, and, among other purposes, it is employed, mixed with pitch and tar, in the calking of ships. The seeds, called Mulacca Beans or Marsh Nuts, are eaten, and are said to stimulate the mental powers, and especially the memory.

Sempervivum. Houseleek. From *semper vivo*, to live forever; referring to the tenacity of life of these plants. *Linn. Dodecandria-Dodecagynia.* Nat. Ord. *Crassulaceæ.*

A genus of shrubby, herbaceous succulent plants, the most beautiful of which are natives of the Canary Islands. The genus is composed chiefly of hardy plants. The tender kinds are interesting plants, and deserve a place in the green-house. Many of the hardy kinds are exceedingly pretty when in flower, and some become beautifully tinted in winter when fully exposed to the weather, as they always should be, for they are impatient of covering of any kind. They require very little water, except when about to flower; and they are propagated by cuttings, which must be laid to dry for some days before they are planted. They are very suitable for rock-work, and are occasionally used for "carpet bedding." Young plants are also freely produced by suckers from the old ones.

Seneca Snake-root. See *Polygala.*

Senecio. Groundsel. From *senex*, an old man;

the receptacle is naked, and resembles a bald head. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

This is a large genus of varied character, some of which are of an ornamental character. *S. elegans*, a native of the Cape of Good Hope, was introduced about 1700, and has long been a favorite in cottage gardens under the name of *Jacobæa*. It is properly an annual, though easily kept as a perennial, and made to assume almost a shrubby appearance. There are several varieties of the species, as the double white, double purple, or double red, all of which are pretty, and useful for their long-continued flowering. *S. vulgaris*, the Groundsel of British gardens, is there one of the most troublesome weeds. It has been introduced here by seeds in the soil of imported plants; but, fortunately, does not increase freely with us. There are several species indigenous to this country, but all mere weeds.

Senna. See *Cassia.*

Sensitive Brier. See *Schrankia.*

Sensitive Fern. See *Onoclea sensibilis.*

Sensitive Plant. See *Mimosa pudica.*

Sequoia. The generic name is a supposed modification of *See-qua-yah*, the name of a celebrated Cherokee chief. *Linn. Monœcia-Octandria.* Nat. Ord. *Coniferæ.*

The two species that at present constitute this genus are gigantic evergreen trees, natives of California. *S. gigantea* is the far-famed Mammoth Tree, which was discovered by an American hunting party in the Sierra Nevada, Upper California, in 1850. The so-called Mammoth Grove is in Calaveras. This was the first discovery; and though found in various parts, none have attained the height of those the astonished hunters first beheld. "The tallest tree of the Mammoth Grove, stripped of its bark for the purpose of exhibition, was 337 feet high, and at the base was 90 feet in circumference. The greatest dimensions seems to have been attained by a tree which was found broken at a height of 300 feet, and which measured at that place eighteen feet in diameter. Considering it was one hundred and twelve feet in circumference at the base, and tapered regularly to the point where broken, it is calculated to have been, when in the fullness of its growth, four hundred and fifty feet high. By actual counting of the concentric rings, this tree was found to have been 1,100 years old." *S. sempervirens* is the Redwood of the timber trade, and extends from Upper California to Nutka Sound. It attains gigantic dimensions, being frequently more than three hundred feet high, and imparts to the woods a peculiar character; as Douglas said, "Something that plainly shows we are not in Europe." This species furnishes most of the lumber used in house-building, cabinet work, and for various other work in which pine is employed east of the Rocky Mountains. These trees have been introduced into our nurseries, and are found to be hardy around New York, though no such extraordinary dimensions are ever likely to be attained as in their native habitat.

Sericographis. From *serikos*, silk, and *grapho*, to write. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Acanthaceæ.*

This genus consists of a few species of undershrubs and herbaceous evergreens. *S. Ghiesbreghtiana* is a handsome winter-flowering plant, requiring the same treatment as the *Ruellia.*

Service Berry. See *Amelanchier.*

Service Tree. See *Pyrus.*

Sesamum. Bene Plant. From *sempsen*, the Egyptian name of one of the species. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Pedaliaceæ.*

S. Orientale, a native of the East Indies, is the Bene Plant of our gardens, and of domestic medicine, being used with excellent results in severe cases of dysentery. It is now grown for that purpose in the vicinity of New York and other large cities. A dozen leaves put in a tumbler of water quickly give out a mucilaginous, starch-like substance, in which condition it can be freely used. Cultivation the same as for other tender annuals, that is, by sowing in March in a hot-bed, if wanted early, or in the open border in May for general crop. It is a tender annual, with flowers of a whitish color, shaped somewhat like those of the *Foxglove*, and produced in loose terminal spikes. In the Southern States and in Africa this species was, and is yet to some extent, considerably grown for the oil the seed yields, which oil will keep many years without acquiring any rancid taste or smell. When first made it is quite heating, and is used as a stimulant; but after two or three years it becomes quite mild, and is used as a salad oil. The seeds are also used by the negroes for food, which they prepare in various ways. In Japan the oil is used as we use butter in cooking.

Setania. Bristly Fox-tail Grass. From *seta*, a bristle; the involucrum is bristly. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

An extensive genus of grasses, mostly annuals, and of but little interest.

Shad-Bush. See *Amelanchier.*

Shaddock. See *Citrus decumana.*

Shallot. *Allium Ascalonicum.* The Shallot is a native of Palestine, especially near the once famous city of Ascalon, whence its specific name. It was first introduced into England in 1548, and has ever since been cultivated to a considerable extent, and used in the same manner as the Onion. It is highly esteemed for pickles. Several varieties have been noticed; the only difference, however, seems to be in the size, which may properly be attributed to cultivation, as it is largely upon this that the size depends. Shallots are grown to a considerable extent in the vicinity of New York. The bulbs are planted one foot between the lines and six inches between the plants, in October, and are marketed in the green state the following May. From the early maturing of the crop, they are always very profitable, though grown to a much less extent than Onions. Increased only by division.

Shamrock. While some say that this is *Trifolium repens*, others assert that the true Shamrock is *Oxalis acetosella.* The preponderance of opinion is, however, that it is *T. repens*, (Clover.) The Shamrock is the national emblem of Ireland.

Sheep Berry. See *Viburnum lentago.*

Sheep Laurel. See *Kalmia angustifolia.*

Sheep's Scabious. See *Jasione.*

Shepherd's Purse. *Capsella*, one of our most common weeds. Introduced from Europe.

Shepherdia. Named after the late *John Shepherd*, curator of the Botanic Garden of Liverpool. *Linn. Diœcia-Tetrandria.* Nat. Ord. *Elæagnaceæ.*

A small genus of native shrubs, or low-growing trees, common on the banks of the Missouri River. They are favorite shrubs on account of their blooming very early in spring, and their fine appearance in autumn, when their branches

are thickly clad with rich clusters of crimson berries, resembling somewhat, in color and size, the common red Currant. They are popularly known as the Buffalo-berry, Rabbit-berry, and sometimes as Beef-suet Trees.

Shell-bark Hickory. See *Juglans.*

Shield Fern. See *Aspidium.*

Shooting Star. A Western name of the *Dodecatheon meadia*, which see.

Showy Orchis. See *Orchis.*

Siberian Crab. See *Pyrus prunifolia.*

Sibthorpia. Named after *Dr. Humphrey Sibthorp*, formerly Professor of Botany at Oxford. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

A genus of trailing herbaceous plants, natives of South America, Europe, and Africa. A few of the species are under cultivation. *S. Europea* is a very pretty low-growing species, with yellow flowers and dark green foliage. It is a good plant for the shady border or for pot culture. The pot being suspended, it will droop all around it to a distance of three feet. There is a beautiful variety, with variegated foliage, but it is more difficult to grow.

Sickle-pod. See *Arabis Canadensis.*

Side-saddle Flower. See *Sarracenia.*

Sieversia. Named after *M. Sievers*, a Russian botanical collector. *Linn. Icosandria-Polygynia.* Nat. Ord. *Rosaceæ.*

A small genus of hardy herbaceous perennials. The species from Austria and Switzerland have large yellow flowers, solitary, and are quite handsome. They are propagated by division.

Silene. Catchfly. From *sialon*, saliva; in allusion to the viscid moisture on the stalks of many of the species, by which the smaller kinds of flies are entrapped; and hence the common name of the genus, *Catchfly. Linn. Decandria-Trigynia.* Nat. Ord. *Caryophyllaceæ.*

This, the type of an extensive and highly interesting order, is in itself a genus of much beauty. It numbers above a hundred and fifty species, which are chiefly hardy herbaceous plants, or annuals of the same character. The latter, however, contain many which are mere weeds. Red of various shades is the prevailing color of the flowers, though both white and purple are found in it. *S. viscosa* is a popular biennial, frequently grown for the backs of large borders, and the old Lobel's Catchfly (*S. armeria*) is still occasionally met with. *S. Schafta* combines every good quality to be desired in border flowers, being hardy, herbaceous, trailing closely to the ground, and bearing a profusion of crimson red flowers. It is easy to grow either as a pot plant or in the open ground, and will, doubtless, occupy a prominent place when better known. The shrubby species of this genus are easily increased by cuttings; and though hardy enough to resist almost any amount of frost, they are sometimes injured by excessive wet, and for this reason a few should be potted and kept in a cold frame. Such of the annuals as are worth cultivating need only to be sown where they are to flower. Several species are common throughout the United States, but they are of less importance than those from Southern Europe and Africa. First introduced in 1640.

Silk Tree. *Acacia Julibrissin*, a native of the Levant. See *Acacia.*

Silk Oak. See *Grevillea.*

Silk Weed. See *Asclepias cornuti.*

Silphium. Rosin Plant, Rosin Weed, Compass

Plant. From *silphion*, the Greek name applied to an Asafœtida plant. *Linn. Syngenesia-Necessaria.* Nat. Ord. *Asteraceæ.*

A small genus of strong-growing herbaceous perennial plants, common in the Western and Southern States. *S. laciniatum* is said to present its leaves exactly north and south, which gives it the name of Compass Plant. The leaves and stems of some of the species exude a large amount of resin, whence the common name Rosin Weed. All the species are of far more interest to the botanist than the florist.

Silver Balm. See *Melissa.*

Silver Bell Tree. See *Halesia.*

Silver Fern. See *Cheilanthes.*

Silver Fir. See *Picea* and *Abies.*

Silver Weed. See *Impatiens.*

Sinapis. Mustard. From the Celtic *nap*, a designation applied to all plants resembling the Cabbage or Turnip. *Linn. Tetradynamia.* Nat. Ord. *Brassicaceæ.*

A genus of hardy yellow-flowered annuals. *S. nigra* is the common Black Mustard, and *S. alba* the White Mustard of commerce, both natives of Europe, and most common on the shores of the Mediterranean. The former yields a greater portion of the Mustard in general use. Both species are extensively grown in England as field crops, and also in many other parts of Europe. These species are common in fields and waste places in this country, having escaped from the garden and become naturalized. There are several other species, but they are all of the same general character.

Sinningia. In honor of *William Sinning*, gardener to the University of Bonn, on the Rhine. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Gesneraceæ.*

The species that make up this genus are now included in *Gloxinia*, though still retaining their old name in many of the dealers' lists.

Siphocampylus. From *siphon*, a tube, and *kampylos*, curved; in allusion to the curved shape of the flower. *Linn. Pentandria-Monogynia.* Nat. Ord. *Lobeliaceæ.*

An extensive genus of handsome low-growing evergreen shrubs, natives of South America. The flowers are mostly tubular, scarlet, or yellow, solitary on axillary stalks, or in dense racemes or clusters. Several of the species are cultivated for their showy flowers, among which is *S. bicolor*, a well-known species. They are propagated by cuttings. Introduced in 1842.

Siphonia. From *siphon*, a tube or pipe; the use made of the exudation, which constitutes India Rubber. *Linn. Monœcia-Monadelphia.* Nat. Ord. *Euphorbiaceæ.*

S. Cahuchu, an evergreen tree indigenous to tropical South America, is the most remarkable species of the genus. It is to this tree that we are indebted for the greater part of our supply of Caoutchouc or India Rubber. It is a native of French Guiana, and attains a height of seventy-five feet, rarely a hundred. The mode in which the *rubber* is obtained by the natives, is by making incisions through the bark of the lower part of the trunk of the tree, from which the sap, which is a fluid resin, issues in great abundance, appearing of a milky whiteness as it flows into the vessel prepared to receive it. On exposure to the air, this milky juice gradually thickens into a soft, reddish, elastic resin. This substance is poured into a mould, in small quantities at first, and is then exposed to a dense smoke, produced by the burning of nuts from several of the Palms, until it is sufficiently hard to bear

another coat, when the process is repeated, until the mass is of a convenient size to handle for shipment. There are several other species of this genus that yield large quantities of *rubber*, common from Central America to Brazil. The first discovery of this valuable tree and its uses was made by M. de la Condamine in 1736, but it is only within the last fifty years that it has become an important article of commerce. *Ficus elastica* also produces the India Rubber of commerce, and is the best known of the rubber-producing trees, in consequence of being largely grown under glass for ornamental purposes.

Sisyrinchium. Blue-eyed Grass. From *sys*, a pig, and *rygchos*, a snout; so called on account of the fondness that swine have for the roots. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A genus of very pretty hardy herbaceous plants, common throughout the United States. When out of flower the plant resembles a tuft of low-growing, coarse grass. The flowers are small, of a delicate blue, changing to purplish, and occasionally pure white. This genus makes a beautiful clump in the garden. It is in its greatest perfection of flower in June, but will flower sparingly during the whole summer.

Skimmia. From *Skimmia*, a Japanese word, signifying a hurtful fruit. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Aurantiaceæ.*

A genus of half-hardy evergreen shrubs, natives of Japan and Northern India. *S. Japonica* is a pretty dwarf-growing, holly-like shrub, with dark, shining, evergreen, entire flat leaves, and clusters of bright red berries, which give the plant a very handsome appearance. It would not stand our winters north from Washington. It is increased from seeds. Introduced in 1845.

Skullcap. See *Scutellaria.*

Skunk Cabbage. See *Symplocarpus fœtidus.*

Sleep-at-noon. See *Tragopogon pratensis.*

Slipperwort. See *Calceolaria.*

Smart Weed. See *Polygonum.*

Smeathmannia. In honor of *Smeathman*, a naturalist, who traveled in Africa, and collected many botanical specimens. *Linn. Polyandria-Polygynia.* Nat. Ord. *Passifloraceæ.*

A small genus of white-flowered green-house evergreen shrubs from Sierra Leone. Like all this natural order, the flowers are quite as remarkable for singularity of form as for beauty. This genus, unlike any others of the order, are upright shrubs instead of twining plants. They require a warm house, and to be well cut back to force into flower. Propagated by cuttings. Introduced in 1823.

Smilacina. False Solomon's Seal. From *smile*, a scraper; alluding to the roughness of the stems. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of hardy herbaceous plants, with terminal racemes of small white flowers. They are common in moist woods in the Northern and Western States. *S. bifolia* is a beautiful little plant, about six inches high, and is popularly known in the New England States as Wild Lily of the Valley. All the species are worthy a place in the garden for their long bunches of beautiful light-red, purple-speckled berries, which remain until late in autumn. Propagated from seed or root division.

Smilax. See *Myrsiphyllum asparagoides.*

Smilax. Green Brier, Cat Brier. From *smile*, a scraper; the stems are rough from prickles. *Linn. Dioecia-Hexandria.* Nat. Ord. *Smilaceæ.*

The many species of this genus are coarse-growing, troublesome, hardy climbers, justly regarded as pests by farmers and gardeners. The common Cat Brier of our hedgerows and woods, a prominent member of this family, has its reputation too well established to need further description. The genus includes some species celebrated for their medicinal properties. *S. officinalis*, a native of Columbia, Guatemala, and Lima, furnishes the drug known as Sarsaparilla; besides this, there are several other species, the roots of which are sold as Sarsaparilla. *S. medica* is the Mexican Sarsaparilla, and *S. papyracea* is the Brazilian Sarsaparilla. *S. China* has esculent roots, which are eaten by the Chinese, and also used in the manufacture of domestic beer. The roots of several species of the Aralia are used in the adulteration of Sarsaparilla. "Smilax," popularly known as such, is the plant so extensively grown for festooning, and is described under its proper name, *Myrsiphyllum*, which see.

Smoke Tree. See *Rhus cotinus.*

Snail Flower. See *Phaseolus Caracalla.*

Snail Plant. *Medicago scutellata* and *M. helix*, the pods of which are called Snails from their resemblance to those mollusks.

Snake Gourd. See *Trichosanthes.*

Snake Root, Virginian. See *Aristolochia serpentaria.*

Snake Root, White. See *Eupatorium ageratoides.*

Snake's Head. See *Fritillaria meleagris.* A local name applied also to *Chelone*, which see.

Snake-wood. See *Brosima.*

Snapdragon. See *Antirrhinum.*

Sneezeweed. See *Polygonum bistorta.*

Sneezewort. See *Achillea Ptarmica.*

Snowball Tree. See *Viburnum opulus.*

Snowberry. See *Symphoricarpus.*

Snowdrop. See *Galanthus nivalis.*

Snowdrop Tree. See *Halesia.*

Snowflake, Spring. See *Leucojum.*

Snowflake Flower. See *Styrax Japonica.*

Snowflower. See *Chionanthus Virginica.*

Soapwort. See *Saponaria.*

Sobralia. Named after *Don F. M. Sobral*, a Spanish botanist. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

The flowers of the principal species (*S. macrantha*) are gorgeously colored of a rich rosy purple and the most intense crimson, and they are at the same time of immense size. All the species belong to the class of terrestrial Orchids, being found on the margins of streams, growing, like our reeds, in the alluvial deposit common to such places. This habit requires to be imitated in cultivation, and it is therefore best to pot them in very sandy loam, and either to place the pot for a few inches of its depth in a saucer of water, or to supply the roots by other means abundantly with water while they are in an active state. The flowers are produced near the apex of the long, reed-like stems, and in the species mentioned are produced in daily succession, each one lasting a day, when it has been observed necessary to remove the decaying flower as soon as its beauty is past, or it rots, and consequently spoils the next in succession. Being natives of the milder parts of Guatemala, they do not require a very high temperature at any time, the ordinary one of a green-house being sufficient in summer, and from 45° to 50° in winter, when the plants should be kept nearly dry. There are three other species known, *S. decora*, *S. liliastrum*, and *S. sessilis*, all of them beautiful, but far surpassed by the first men-

tioned. They are all natives of Central and South America, and were introduced in 1836.

Solandra. Nightshade. Named after *Dr. Solander*, a Swede, companion of Sir Joseph Banks in his voyage around the world, and collector of the botanical notes made during the expedition. They are preserved in the British Museum, and exhibit deep learning and great research. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

A genus of coarse-growing green-house evergreen shrubs and climbers, natives of tropical America and the East Indies. The flowers are large and trumpet shaped, like the *Datura*, to which they are allied. They grow readily in the green-house, and make showy plants, the objection to them being that they are coarse. They are increased readily from cuttings. Introduced in 1820.

Solanum. The derivation of this word is quite uncertain; some derive it from *Sol*, the sun; others say it is *Sulanum*, from *sus*, being serviceable in the disorders of swine; and others assert that it is from *solor*, to comfort, referring to its soothing, narcotic effects. *Linn. Pentandria-Monogynia.* Nat. Ord. *Solanaceæ.*

This very extensive genus is composed of a great number of varied forms, from that of a tropical tree to the creeping indigenous weed, Nightshade; and it also includes plants whose active property is a most decided poison, and at the same time yields several very important articles of food. The Potato, *S. tuberosum*, the Egg Plant, *S. melongena*, are some of the species, and the Tomato, *Lycopersicon esculentum*, is hardly a distinct genus. But very few species of *Solanum* can be recommended for ornamental purposes. *S. Jasminoides*, from South America, is a desirable climber for the green-house. It produces, with but little trouble, an immense number of axillary clusters of pure white flowers, and the plant continues in bloom a long time. It is a rapid grower, and suitable for a back wall, or to train around pillars. *S. Dulcamara* is the shrubby Bitter-Sweet of the hedges, the fruit of which is a deadly poison. It is not indigenous, but has become naturalized from Europe. *S. ciliatum*, a native of China, is a pretty shrubby species, on account of its fruit, which is of the size of the Siberian Crab Apple, of a bright red color, and remarkable for the long time it lasts on the plant, which is more than two years. *S. capsicastrum* is the Jerusalum Cherry of the cottage garden. *S. Carolinense*, or Apple of Sodom, has beautiful scarlet fruit, and is well worthy of cultivation as an ornament for our gardens or green-houses at the north, though in some of the Southern States it is deemed one of the worst weeds.

Soldanella. A diminutive of *solidus*, a shilling; shape of the leaves. *Linn. Pentandria-Monogynia.* Nat. Ord. *Primulaceæ.*

A small genus of beautiful little Alpine plants, very suitable for rock-work. They are half-hardy herbaceous perennials, with purple or blue flowers, natives of Switzerland. They will not stand the hot, dry weather of this country unless great care is taken to keep them shaded from the mid-day sun, and they must not be allowed to get dry. Propagated by division or from seeds.

Solea. Green Violet. In honor of *W. Sole*, author of an essay on the genus *Mentha*. *Linn. Pentandria-Monogynia.* Nat. Ord. *Violaceæ.*

S. concolor, the only known species, is common in woods from New York southward.

Solidago. Golden Rod. From *solidare*, to unite;

supposed healing properties. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A very extensive genus of hardy herbaceous perennials, indigenous to and common throughout the United States. There are fifteen species on Long Island. The beauty of the plant would warrant its cultivation, had not nature's hand rendered it entirely unnecessary.

Sollya. Named in honor of *Richard Horsman Solly*, a vegetable physiologist and anatomist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Pittosporaceæ.*

A small genus of slender, twining evergreen shrubs of much beauty. Their leaves are narrow, quite smooth, of a deep glossy green on the upper surface, and paler beneath. The flowers are deep blue, and produced in terminal cymes or clusters of from six to ten flowers each. Though properly green-house plants, they are well adapted for summer flowering in the open border. *S. heterophylla*, typical of the genus, is a native of the Swan River country, where all the species are found. It was discovered by Mr. Drummond, and sent to England in 1836. It is increased either by cuttings or from seed, the latter being preferable. All the species are hardy from Virginia southward.

Solomon's Seal. See *Polygonatum multiflorum.*

Sonchus. Sow Thistle. From *somphos*, hollow; the stems are hollow. *Linn. Syngenesia-Monogynia.* Nat. Ord. *Asteraceæ.*

The more common species of this genus are coarse roadside weeds, naturalized from Europe. One or two species with yellow flowers, from the Madeira and Canary Isles, are very ornamental. They belong to the green-house, but are rarely met.

Sonerila. From *Sootli-Soneri-ila*, the Khassee name of one of the species. *Linn. Octandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

A very extensive genus of East Indian plants, remarkable in the order for having all the several parts of their flowers in whorls of three, or trimerous, as it is technically called. The plants are mostly herbaceous, though sometimes sub-shrubby, and of variable habit; some with and others without stems; some glabrous and others hirsute; and some with different kinds of leaves on the same plant. Their flowers are mostly purple or violet, borne on a scaphoid raceme. Some of the hot-house species are beautiful plants, *S. Hendersonii*, with its handsomely marked foliage, being one of the best. It requires a warm, moist atmosphere to succeed well. It will grow best in a soil composed chiefly of leaf mould and sand. Propagated by cuttings and from seeds.

Sophora. Altered from *sophera*, the Arabic name of a leguminous tree. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

A genus of deciduous trees, hardy herbaceous plants, and green-house evergreens. The *Sophora Japonica* is a medium sized tree, grows freely, and produces its large bunches of cream-colored flowers in August and September. The drooping Sophora, however, though only considered a variety of the tree, is very distinct. It is a trailing shrub, sending out shoots six feet or eight feet long in a single season; and when it is grafted on a stock of *S. Japonica*, ten or twelve feet high, these long, sweeping shoots, the bark of which is a bright green, have a peculiarly graceful appearance. The Sophora will grow in any soil, but a poor one suits it better than a rich one, its leaves seldom drop even in the driest seasons.

The evergreen species are not considered worth the attention they demand.

Sophronitis. From *sophrona*, modest; referring to the pretty little flowers of the original species. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

Pretty little epiphytes, having a creeping stem, which should be attached to a block of wood, on which the root soon securely fastens itself. The leaves are sessile and comparatively small, while the flowers, especially those of *S. grandiflora*, are large and very handsome, of a rich orange-red, marked with darker bars. The plants should have the treatment of the smaller kinds of *Cattleya*, and are well deserving adoption. The four species included in this genus are natives of Brazil. Introduced in 1827.

Sorghum. From *Sorghi*, its Indian name. *Linn. Polygamia-Monœcia.* Nat. Ord. *Graminaceæ.*

A genus of strong-growing, reed-like grasses, chiefly represented in this country by *S. saccharatum*, our well-known Broom Corn, a native of India, from whence it was introduced into Europe in 1759. The introduction of Broom Corn into this country as an agricultural product is attributed to Dr. Franklin. He is said to have accidentally seen an imported whisk of corn in the possession of a lady of Philadelphia, and while examining it as a curiosity, found a seed, which he planted, and from that single seed has sprung this important article of agriculture and manufacture in the United States. This species is grown almost exclusively for the manufacture of brooms; the seed is, however, valued highly for feeding to sheep, cattle, and fowls. The seed crop is a precarious one, often completely failing, being injured by the frost before it is ripe. The crop is usually harvested before the seed is fairly ripe; hence there is considerable loss in that way. The seed-crop is, however, only a secondary matter, and the profit that accrues from the seed is regarded an extra dividend on the profits of the farm. *S. sucre* is the Chinese Sugar Cane, or *Imphee*, a species introduced into the United States from France in 1856, and distributed by the Patent Office Department at Washington, but more extensively by an enterprising publisher in New York as a premium to his subscribers throughout the United States, for the purpose of growing the plant for the manufacture of sugar in our Northern States, which its advocates said could be done more profitably than sugar was produced at the South from the ordinary cane. The Abolitionists at the North, who could not conscientiously use the products of slave labor, were particularly active in introducing Sorghum, and were greatly disappointed when they found that the labor of the slave was not to be lessened by the withdrawal from the South of one of its most profitable industries. *S. vulgare*, another species, is the grand Millet of Arabia, known here as Durra, and has been introduced into the United States, Southern Europe, China, and the West Indies, where it is extensively grown and much esteemed as food for laborers, and is called in the latter country Negro Guinea Corn. It is also grown extensively as a forage plant. *S. halepense* is naturalized in the Southern States, where it is known as Guinea Grass or Cuba Grass. *S. cernuum* is also grown there, and is known as Drooping Sorghum and Pampas Rice. All the species are grown in the same manner as our common field corn. The cultivation of Sorghum for the production of sugar and syrup has received a good deal of attention within a few years past, and many experiments have been made, and continue to be made, with various kinds of Sorghum, to ascertain not only their adaptability to particular soils and locality, but their sugar-producing capacity. The "Report of the Department of Agriculture" for last year contains a very interesting and instructive report from the chemist of the department, giving the results not only of the yield per acre of the four leading kinds of Sorghum, as grown on the experimental grounds, but also the quantity of sugar and syrup extracted from each kind. The report is accompanied by many very useful tables. Believing the matter of this report to be valuable to those interested in the culture of Sorghum, we have condensed a portion of it, and herewith present it: "During the past season (1879) there have been made several series of investigations for the purpose of determining the development of sugar in the juices of several varieties of Sorghum, Maize, and Pearl Millet. These investigations appear to demonstrate that there exists little difference between the various kinds of Sorghum as sugar-producing plants; and, what is quite a surprising result, each of them is, at a certain period of its development, nearly, if not quite, as rich in sugar as the very best of Sugar-cane. It is a matter, also, of extreme practical importance that this maximum content of sugar is maintained for a long period, and affords sufficient time to work up a large crop. Another result of these investigations has been to satisfactorily explain the cause of repeated failure in the production of sugar during the past quarter of a century, and to give the assurance that, in the future, such failure need not attend this industry. For the purpose of making clear the above points, the results obtained in the laboratory and in out-of-door experiments are appended. The varieties of Sorghum grown and subjected to continuous investigation during the season were Early Amber, White Liberian, Chinese, and Honduras, and the Pearl Millet. Besides the above there were made very many examinations of other specimens of Sorghums and Corn-stalks; all the results of which only confirmed the general principle above stated, viz., the practical equality and great value of every variety of this plant. The Early Amber Sorghum is the favorite variety with planters in Minnesota and the Northwest. What is now called the Minnesota Early Amber cane is claimed as an improvement upon the Early Amber varieties grown formerly in different parts of Minnesota, by Hon. Seth M. Kenny and Mr. C. F. Miller of that State. Acting on the theory that cane in a high latitude will degenerate if grown continuously from its own seed, these gentlemen selected the finest specimens of seed from their own crops, and sent them to a southern latitude to be grown. The seed product of this southern growth was returned to Minnesota. By this alternation of seed, and by other intelligent processes of culture, they have succeeded in establishing a new and permanent variety, which they claim to be more productive in weight of cane and to contain a higher per cent. of saccharine matter than any other grown in that State. This claim needs to be substantiated by more careful and extended observations before it can be said to be fully established. Messrs. Kenny and Miller describe the Early Amber cane as presenting 'the characteristics of both Sorgho and Imphee.'

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By Sorgho they mean the Chinese Sorgho, and by Imphee the White Liberian and its kindred African varieties. The Early Amber receives its name from its early ripening, and from the bright amber color which characterizes its syrup when properly made. The Early Amber cane on the department grounds did not grow quite so tall as the White Liberian. Its seed-heads were of moderate fullness and of very dark color. The Chinese Sorghum grew on the department grounds to about the same height as the Early Amber. Its seed-heads are fuller and more compact, and somewhat resemble a head of Sumac; hence the synonym, 'Sumac Cane.' It is also known as 'Chinese Cane.' The White Liberian Sorghum is rather taller than the Early Amber. The stalk curves at the top, leaving the head pendent; hence the synonym, 'Gooseneck.' The seed-heads are shorter, more compact, and of lighter color than the Early Amber. The Honduras Sorghum grows about one-half taller than either of the above varieties. Its seed-top is reddish-brown and spreading; hence the synonym, 'Sprangle Top.' It is also called 'Mastodon' and 'Honey Cane.' The results of the analysis of each of the plants in the successive stages of development show that the amount of glucose (or uncrystallizable sugar) diminishes, and the amount of sucrose (or true cane sugar) increases. It may also be observed that the plants differ widely in the date when the sucrose is at its maximum, but are alike in this, that this maximum is attained at about the same degree of development of the plant, viz., at full maturity, as indicated by the hard, dry seed, and the appearance of offshoots from the upper joints of the stalk. It may also be observed that the heavy frost of October 24, which was sufficient to produce one-half inch of ice, did not cause any marked diminution of sugar. For the purpose of comparison analyses were made of three varieties of Sugar-cane received from Louisiana, which arrived in excellent condition, and doubtless fairly represented the average character of this famous sugar-plant. It will be understood that the results are to be taken as a whole, since it was practically impossible to secure in each case specimen stalks for examination in the laboratory, the development of which in every case corresponded to the date when the plant was cut, and, therefore, it doubtless happened that plants taken from the same row upon September 15, for example, were in reality no further developed than those selected a week earlier; but, taken as a whole, the several series of analyses are convincing, as showing the rate and progress of development of saccharine matter in the plant. The analyses of the several Sorghums under date of October 29 were made after they had been subjected to a very hard frost, sufficient to have formed ice one-half inch in thickness, and this cold weather continued for four days before this examination was made. There appeared to be no diminution of sucrose in either of the stalks examined, and no increase of glucose, as the result of this freezing and continued exposure to a low temperature. An examination was made on the 8th of November, after a few days of warm weather had followed this cold spell, and the influence of this subsequent thaw was noticeable in the diminution of sucrose and the increase of glucose in each specimen examined. From this it would appear that the effect of cold, even protracted, is not injurious to the quality

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of the canes, but that they should be speedily worked up after freezing and before they have again thawed out. This is a matter of such practical importance that some experiments should be made to learn whether the syrup prepared from the juice of frozen cane differs from that prepared from cane not frozen, but in other respects of like quality. The Early Amber, Chinese, Liberian, and Honduras Sorghums and the Pearl Millet examined, mentioned as having been grown upon the department grounds, were all planted the same day, May 15, 1879. The relative weights of the different kinds of Sorghum experimented upon are as follows:

	Pounds.
Early Amber, average of 40 stalks	1.73
White Liberian, average of 38 stalks	1.80
Chinese, average of 25 stalks	2.00
Honduras, average of 16 stalks	3.64

Since these were all grown side by side, and upon land presumably of equal fertility, it will afford the data for calculating the relative amount of each variety to be grown per acre. For more clearly presenting the facts developed by the examinations of the four kinds of Sorghum, it may be observed that the Early Amber and Liberian correspond in their development, being almost identical, and yet clearly distinct varieties. It may also be stated, that while these two varieties attain a content of sugar in their juices equal to the average content in the juice of Sugar-cane by the middle of August, the Chinese does not reach this condition until the last of September, while the Honduras does not reach this point until the middle of October. After having attained approximately the maximum content of sugar, this condition is maintained for a long period, affording ample time to work up the crop. It is doubtless true that, had the season been longer, it would have been found that the Chinese and Honduras, having once attained this full development of sugar, would also have retained it; but the heavy frosts and subsequent warm weather, which happened about November 24, caused a rapid diminution of sucrose in each variety, and a corresponding increase of glucose. The converse of what is found true of the sucrose is true as to the development of the glucose, and a minimum quantity, once attained, is continued a long time, and this minimum is quite as low as the average amount found present in the sugar-canes. It is obvious that the results are not to be taken as entirely exact, but the general fact is, without doubt, true. An average of all the examinations made of these four Sorghums during the periods when they were suitable for cutting, gives the following results: Early Amber, from August 13 to October 29 inclusive, 15 analyses, extending over 78 days, 14.6 per cent. sucrose. Liberian, from August 13 to October 29 inclusive, 13 analyses, extending over 78 days, 13.8 per cent. sucrose. Chinese, from September 13 to October 29 inclusive, 7 analyses, extending over 46 days, 13.8 per cent. sucrose. Honduras, from October 14 to October 29 inclusive, 3 analyses, extending over 16 days, 14.6 per cent. sucrose. Besides the investigations above mentioned, there have been made 35 experiments in making sugar from Corn-stalks, Sorghums, Pearl Millet, etc., in all of which there have been used over 23 tons of stalks. The result of these experiments has been to fully confirm all the experiments not only of the previous year, but also to

help towards the solution of certain questions of the highest practical importance. In every case it has been found that the quality of the syrup obtained has been precisely such as the previous analysis in the laboratory of the juice used made probable. An average of the nine best syrups obtained showed a percentage of Cane sugar present equal to 92.7 of the amount originally present in the juice, while an average of the nine poorest (*i. e.*, containing the lowest percentage of Cane sugar) showed a percentage of Cane sugar present equal to 90.1 of the amount present in the juice. This must not be understood to mean that there has been no loss of sugar in the process of manufacture, as such conclusion would be quite erroneous. An experiment was also made to determine whether splitting the canes before they were passed through the mill would increase the percentage of juice obtained from the stalks. One hundred pounds of butt ends of Honduras Sorghum were split lengthwise, and then passed through the mill. Another parcel of one hundred pounds of butts of the same variety of Sorghum, equal in all respects to the previous lot, was passed through the mill without splitting them. The results obtained were as follows: Percentage of juice obtained from split stalks, 54 per cent.; percentage of juice obtained from unsplit stalks, 57 per cent.; from which it would appear that in this case at least the previous splitting of the stalks occasioned an appreciable loss in juice. A few of the experiments made give a reasonable basis for estimating the probable yield of syrup and sugar to the acre; and, therefore, an approximate estimate of the cost of producing sugar. Below is a tabulated result of a few of the experiments from stalks grown upon the grounds of the department. These stalks were grown in rows three feet apart and in drills, and although a good crop, there is no doubt but that, upon good land, the estimated yield to the acre could be obtained:

Varieties.	Pounds stalks per acre.	Syrup obtained.	Syrup, juice at beet.	Syrup, juice = 70 per cent.
Chinese Sorghum	38,600	2,096	2,397	3,673
Liberian Sorghum	33,727	2,472	2,609	3,783
Early Amber Sorghum	32,415	2,100	2,615	3,661
Honduras Sorghum	66,151	3,652	5,168	7,537
Pearl Millet	65,000	1,846	3,128	4,865
Field Corn	27,240	1,166	.....	1,807

The first and second columns give the results actually secured, but the several juices were not in their best condition. The third column is the amount of syrup the same weight of stalks would have yielded had they been cut at the proper time. The juice obtained from the stalks by the imperfect means at command of the department was little more than half the amount present in the stalks. The fourth column represents the results attainable by the use of a mill that would give 70 per cent. of juice from the stalks; a result which is possible, and which is claimed by manufacturers of mills. There is no doubt that, when the present industry shall have secured the employment of the capital and scientific ability which have developed the beet-sugar industry, even these results, which may appear extravagant to many, will be assured." There is much more of this report, but so intimately connected with large tabular statements that the two could not be separated, and the tables are too large to be transferred to these columns. We therefore suggest to all engaged in the cultivation of Sorghum to procure this report. It will be of great assistance to them in helping to determine many points relating to culture and the manufacture of syrup and sugar.

Sheep Sorrel. See *Rumex acetosa*, the common Field Sorrel.

Sorrel. See *Rumex.*

Sorrel Tree. See *Oxydendrum arboreum*, (*Andromeda arborea.*)

Sour Gum. See *Nyssa.*

Sour Gum Tree. See *Nyssa.*

Southern Wood. See *Artemesia Abrotanum.*

Sow Bread. See *Cyclamen Europœum.*

Sow Thistle. See *Sonchus.*

Spanish Bayonet Plant. See *Yucca.*

Spanish Lily. See *Hymenocallis.*

Sparaxis. From *sparasso*, to tear; alluding to the lacerated spathes. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

This genus is fast rising in the estimation of both the florist and the gardener. Varieties, very pleasing in color, are annually raised in Europe. It is a dwarf bulbous family of plants from the Cape of Good Hope, producing flowers about the size and shape of those of the Crocus, the colors of which are now of infinite variety; pure white, yellow, orange, red, purple, and violet, are to be found, either separate or blended in pleasing variations. They succeed best planted in a frame, where they can have a slight protection during winter. They succeed well also grown in pots in a cool green-house. The bulbs should be potted in September, and kept under a bench until they begin to grow, when they should be given light and water. Three or four bulbs may be put into a five-inch pot with good effect. They increase rapidly by offsets. Introduced in 1811.

Sparganium. Bur Reed. From *sparganon*, a fillet; because of the ribbon-like leaves. *Linn. Monœcia-Triandria.* Nat. Ord. *Typhaceæ.*

A genus of marsh plants, of which the Bur Reed is typical, found in almost every part of the world. The root of *S. ramosum* and of *S. simplex* was formerly used medicinally under the name of *Radix sparganii*, and was supposed to cure snake bites. The stem has been used for making paper.

Sparmannia. In honor of *Dr. A. Sparmann*, a Swedish botanist, who accompanied Captain Cook in his second voyage around the world. *Linn. Polyandria-Monogynia.* Nat. Ord. *Filiaceæ.*

S. Africana, the only described species of this genus, is a very beautiful evergreen green-house shrub, introduced into Europe from the Cape of Good Hope in 1790. It is a shrub from six to twelve feet high, with long-stalked, heart-shaped leaves, and clothed with soft, downy, and pretty white flowers in umbels. It is an old favorite in the green-house. Propagated by cuttings.

Spartina. Cord Grass. From *spartine*, a rope made from broom. *Linn. Triandria-Monogynia.* Nat. Ord. *Graminaceæ.*

An extensive genus of perennial grasses, common throughout North America and some parts of Europe. They chiefly inhabit wet or marshy places. Some of the species furnish a valuable fiber.

SPA

Spatalanthus. From *spatalos*, delicate, and *anthos*, a flower. *Linn. Monadelphia-Triandria.* Nat. Ord. *Iridaceæ.*

A very rare and beautiful Cape bulb, allied to *Trichonema.* There is but one species known, and that is rare in its own country. The flowers are red, with a yellow and black star in the center. They may be grown in a frame, or in pots in the green-house, requiring the same culture as the *Ixia.* Propagated by offsets. Introduced in 1825.

Spathoglottis. From *spathe*, a spathe, and *glottis*, a tongue. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of Asiatic terrestrial Orchids, allied to *Bletia.* They have generally yellow flowers, and are not of special interest in the Orchid House.

Spatter Dock. See *Nuphar.*

Spear Grass. See *Poa.*

Spearmint. See *Mentha viridis.*

Spearwort. See *Ranunculus.*

Specularia. From the ancient name *Speculum Veneris*, or Venus's Looking-Glass. *Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

A small genus of hardy annuals, formerly included in *Campanula. S. speculum* is a distinct and pretty species, with purplish-lilac flowers, varying to rose-colored and white. They are among the many old garden favorites now rarely met, though deserving a place in the border. They grow readily from seed, and a succession of sowings will keep up a continuance of bloom during the whole summer. One of the species, *S. perfoliata*, is a native of this country; the others are from Central and Southern Europe.

Speedwell. See *Veronica.*

Sphagnum. A name given by Pliny for some kind of moss. *Linn. Cryptogamia-Pentagynia.* Nat. Ord. *Bryaceæ.*

The species belonging to this genus are found in bogs or swamps at all seasons. *S. palustre* is a white-leaved species. The Gray Bog Moss is *S. obtusifolium.* It is an excellent material for packing plants in, being extremely retentive of moisture, and yet contains so much astringency as to check decay. It is also used for potting Orchidaceous and some other plants. This material has been long used in the packing of plants by both florists and nurserymen, and in various other operations connected with Horticulture; but it was only in 1880 that we began to use it extensively as a mulch, to be placed on the top of the soil of plants in pots, and in beds planted out, a description of which we published in the October number of the "Gardener's Monthly" of that year, and which we here give at length.

Moss Mulching.—For want of a better name we have given this to a practice that we have recently introduced into our green-house department. Some time about the first of January of this year one of our young men suggested mulching with Moss (Sphagnum) a lot of Roses, grown in seven-inch pots, that had become somewhat exhausted by being forced for flowers for the holidays. Believing the idea to be a good one, we at once had a lot of nearly three thousand plants so mulched, mixing, however, with the Moss a good portion of bone dust, perhaps one part weight of bone dust to thirty parts of Moss. In two weeks the effect began to be easily perceived on all the Roses that had been so mulched, and without shifting they were carried through until May with the most satisfactory results, many of the plants having by that time attained a height of four and five feet; and though they had bloomed profusely during a period of nearly six months, they were in the most perfect health and vigor. Believing that if this system proved so satisfactory in a plant refusing such careful handling as the Rose, that doubtless it would do well with many other plants, we at once, almost without exception, adopted the Moss and bone mulch on nearly every plant cultivated, whether planted out in borders or grown in pots, and the result, without a single exception, has been in the highest degree satisfactory. Among the plants so treated are Azaleas, Begonias, Caladiums, Carnations, Crotons, Dracænas, Eucharis, Gloxinias, Palms, Pandanus, Poinsettias, Primulas, Roses, hot-house Grape Vines, and hundreds of other genera. All plants are mulched as soon as we can reach them, from three-inch pots upward. In strong-growing plants the roots can be seen striking upward into the mulch in four or five days after it is put on, and in nearly all cases within two weeks. One great advantage is, that by this system plants can be grown as large and fine in a four-inch pot as in a six-inch pot without the mulch, for the reason that the plant is now fed by the Moss and bone from the surface of the pot, the best feeding point, as most cultivators of experience well know. Another advantage of the mulching system is its great saving of labor, for it just takes about one-fourth of the time to mulch the surface of a pot as it does to shift it. Another, its saving of watering: the Moss acts as a sponge, retaining and giving out the moisture to the plant just as it is wanted. Another, that it crowds down all weeds, and does away with the necessity of stirring the soil in the pots or borders. Another and most important advantage to us who are shippers is, that it lightens the weight of our goods by one-half; that is, we get as large a plant with half the weight of soil. For amateurs who grow plants in rooms, or small conservatories, who have not the conveniences at hand to shift their plants when their condition demands it, this Moss mulching will be of great advantage, not only in keeping plants in good growing condition for many months longer without re-potting, but also in the great advantage it has in counteracting the dry atmosphere usually found in rooms or small conservatories. In my practice of thirty years I have never seen a method of culture that I believe to be of such importance; hundreds who have visited us this season have been equally impressed with its value, for the "proof of the pudding" is most apparent in its results. We have used already over twenty team loads of Moss, and about one ton of bone dust, but never before have we made an investment that has been so satisfactory. If any think we are too sanguine in this matter, we cordially invite them to come and examine. It may be that this Moss and bone mulching is nothing new in the culture of plants, as it is an idea, from its simplicity, that may very likely before have occurred to others, and may have been long ago practiced; but it is new with us and new to us, and if any one has before done so and withheld the knowledge from the public, more shame to him, if the result with him has been as gratifying as it has been to us. In our uses of Sphagnum we found another method of using it, the value of which will be apparent to those who have had experience in raising seeds under glass. Our method is as

SPH

follows: in preparing the soil for seeds we get it as fine and rich as possible, passing it through a very fine sieve. This soil is placed in boxes only two or three inches deep, and it is then made perfectly level and as smooth as possible; on this smooth surface of soil the seeds are sown, and then pressed down into the soil with a smooth board. The seed being thus sunk just to the surface of the soil, we now sift dry Sphagnum, that has been run through a mosquito net wire, over the seed, just thick enough to well cover it. This Moss forms a light, spongy covering, and affords just the best condition needed for germination; and we have found that any seeds having any vitality in them are certain to germinate by this method.

Sphærogyne. From *sphaira*, a globe, and *gyne*, a female. *Linn. Octandria-Monogynia.* Nat. Ord. *Melastomaceæ.*

This genus is remarkable for the color of its foliage. *S. latifolia* has large, broad, and flat leaves, deep green on top, the under side cinnamon brown, the leaves and stem being very hairy. It makes a magnificent specimen plant. A few other species are to be found in choice collections of ornamental-leaved plants. They are natives of tropical America. Propagated by cuttings. Introduced in 1864.

Sphenogyne. From *sphen*, a wedge, and *gyne*, a female. *Linn. Syngenesia-Frustranea.* Nat. Ord. *Asteraceæ.*

A genus of hardy annuals and green-house evergreen perennials, mostly natives of the Cape of Good Hope. They have large, spreading, rayed flower-heads, of an orange color barred with black. They are rarely cultivated. *S. speciosa* is a showy annual, a native of South America, and resembles the *Anthemis*. First introduced in 1768.

Spice Bush. See *Lindera.*

Spiderwort. See *Tradescantia.*

Spigelia. Worm Grass. Named after *Adrian Spigelius*, a botanist at Padua. *Linn. Pentandria-Monogynia.* Nat. Ord. *Loganiaceæ.*

An extensive genus of half-hardy annuals and herbaceous perennials, some of which are ornamental border plants. The Pink Root, Worm Grass, or Indian Pink, is *S. Marilandica*, common in Pennsylvania and southward. It is well known for its medicinal properties.

Spikenard. See *Aralia racemosa.*

Spinach. See *Spinacia oleracea.*

Spinacia. From *spina*, a prickle; in allusion to the prickly processes of the seeds. *Linn. Dioecia-Pentandria.* Nat. Ord. *Chenopodiaceæ.*

The common Spinach is a hardy annual, and supposed to be a native of Western Asia, from the fact that in the early works of the Arabian physicians this plant is mentioned in connection with its medicinal properties, without the slightest allusion to its uses as a vegetable. Spain is supposed to have been the first European country into which it was introduced; for many of the old botanists call it *Olus Hispanicum*, and some of the old writers call it *Hispanach*, or *Spanish plant.* Beckmann, who wrote about 1790, says the first notice of its being used as a vegetable was in 1351, in a list of the different vegetables consumed on fast days by the monks. Turner, who wrote in England in 1538, mentions its being in common cultivation, and prepared for the table in precisely the same manner as it is at present. Spinach is an annual plant, having large and succulent leaves; the flower-stems rise to the height of two or three

feet. The male and female flowers grow on different plants, the female yielding the seed. The former are produced in long, terminal spikes, and the latter in close clusters at the joints of the stem or axils of the leaves or branches. *S. oleracea* is the only known species, and from this the several garden varieties have been obtained. The smooth Round Leaf is the variety mostly grown for market; the Prickly Leaved is more hardy, and is, therefore, the kind which used to be sown in the fall for a first early spring crop, until the variety known as the *Savoy* Spinach was introduced in 1875. This has a crumpled leaf resembling Savoy Cabbage, and is now extensively cultivated, particularly as a fall or winter sort, as it has proved hardier than any of the others, and produces a greater weight of crop. It has the fault, however, of running up sooner to seed than the Round Leaved, and, for that reason, is not so good to sow in spring. Spinach in the latitude of New York should be sown from the 5th to the 15th of September, in rows twelve to fifteen inches apart. It is important with this, as with most other seeds, to firm the soil by treading on the rows with the feet, or using a heavy roller after sowing, as otherwise, if the weather is dry, the seed may be shriveled so that it will not germinate if loosely covered. In all sections of the country where the thermometer falls below zero, and where there is not a certainty of snow for a covering, the Spinach should be covered up on the approach of severe weather (which is usually about the middle of December) with hay, straw, or leaves, to the depth of two or three inches, which covering should be allowed to remain until the Spinach begins to show green through it in the spring. The Viroflay and the Thick Leaved Spinach are promising new kinds of French origin.

Spindle Tree. See *Euonymus.*

Spiræa. From *speirao*, to become spiral; in allusion to the flexile branches being suitable for twisting into garlands. *Linn. Icosandria-Dipentagynia.* Nat. Ord. *Rosaceæ.*

An extensive genus of hardy herbaceous plants and deciduous shrubs. Of the former, *S. lobata*, Queen of the Meadows, is one of our best hardy plants, and the most stately of all the herbaceous Spiræas. (Dr. Gray gives the common name as Queen of the Prairies; but we are inclined to think this a misprint.) It is common in meadows in Pennsylvania, and south and westward. The flowers are very handsome, of a deep peach-color, produced in clustered panicles on long, naked peduncles. It is greatly improved by garden cultivation. There are many who think it finer than *S. palmata*, a species from Japan, and not so recent as some think it. *S. ulmaria*, flowers white, is the Meadow Sweet. It is a native of Britain. *S. filipendula*, also white, and a native of Britain, is known as Drop Wort. Many of the shrubby species, with white and pink flowers, make beautiful clumps for the lawn and shrubbery, as they grow without difficulty, and continue a long time in bloom. Some of the best species are indigenous to the Middle States. Several choice species have been introduced from Japan, among which may be mentioned *S. Reevesiana*, *S. prunifolia*, *S. Douglasii*, *S. Thunbergii*, *S. callosa*, etc. *S. Japonica*, sometimes called *Astilbe* and *Hoteia Japonica*, and *Astilbe barbata*, though best known here as *Spiræa Japonica*, is the most useful of the genus. It belongs to the herbaceous division, forms a most

beautiful hardy border plant, about two feet in height, with branching spikes of pure white, feather-like flowers. This species is most extensively forced for winter flowers, and is one of the plants most used for decoration at the Easter Holidays. Although it can be grown nearly as well here as in Europe, still, at present, the demand for it is so great that our home-grown stock has been altogether insufficient to meet the demand, and probably 50,000 roots are annually imported from England, Holland, and Germany. The roots best suited for pot culture are those having a diameter of from four to six inches. These are potted in five and six inch pots in fall, and covered up so that they do not freeze, but yet have no artificial heat. A dry, sheltered spot against a south fence or wall is best; then, covered with ten or twelve inches of leaves, they can be got at at any time during winter, and should be taken into a cool house—say an average of 45° at night—and watered sparingly until free indications of growth are shown. When well rooted, and the flower stems begin to show, they will stand a higher temperature, but at no time should it be higher than 55° at night, if the best development of flower is desired. It is not very easy to say what time it takes the plant to be at its best flowering from the time it is placed in the green-house; hence it is best to have them come in in succession. At an average of 50° at night and ten degrees higher during the day, from four to ten weeks will be required to get the plant in full development of bloom. A beautifully variegated leaved variety of *S. Japonica* was introduced into the United States about 1865, from Japan, but it did not take kindly to our hot and dry climate, and has now nearly disappeared; but, we believe, in the more congenial atmosphere of Britain, it makes a beautiful plant, as, added to its fine variegation, the flower spikes are more dense and compact than in the plain-leaved species. Another Spiræa, sent to the United States some ten years ago from London as *S. palmata*, is now well known, more from the fact of its being sent out as new, and at a very high price, than as being of any special merit in itself. The facts of the case are, that *S. palmata* had been introduced into England as early as 1822, and was to be found in every herbaceous plant collection in Britain, of any note. Some one had probably again found it in its native habitat, had not known of its long introduction, offered it as a new plant to some not over-scrupulous or not too well-posted nurseryman in London, and out it came on us at the modest price of half a guinea apiece, and sickly little morsels at that, while the *same* plant was offered with the same name in half a dozen catalogues at one-twentieth the price. We never yet have been able to understand this error, if error it was, as it was virtually endorsed by a score of the leading nurserymen in England, by their offering it as new in their catalogues, besides being described and lauded in several of the leading horticultural and botanical magazines in Europe as well as in this country. Evidently the botanist (?) who collected it was a tyro at his work, or he would have known enough to look up the genus, so as not to stumble on some old name for his new-found bantling; but this he evidently did not do; for, if he had looked up Loudon's Encyclopædia of Plants, or any of the more recent works, he would have seen that *S. palmata* was introduced

in 1822; and if he had carried his investigations further, he would have found that his *S. palmata* was identical with that of 1822. Our excuse for treating this matter at length is, that many are not yet aware of the true state of the case, and continue to import *S. palmata* as a comparatively new plant, and yet at a high price. We may state further, that all the plants of this division of the genus are unsuited to our hot, dry climate, unless planted in partial shade.

Spiranthes. Lady's Tresses. From *speira*, a spiral, and *anthos*, a flower; in allusion to the spiral manner in which the flowers are arranged. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of terrestrial Orchids, numbering about fifty species. Some require green-house treatment, and others are perfectly hardy herbaceous plants. All the species are very pretty, but not of sufficient merit to warrant their introduction into the green-house. Of the hardy species, several are indigenous in the Middle States, three or four being found on Long Island. The flowers are small and white, produced on a spirally-twisted spike, by which the genus is easily recognized. *S. cernua* is a pretty native species.

Spleenwort. See *Asplenium.*

Spondias. Hog Plum. The Greek name for a kind of plum; the fruit resembles a plum. *Linn. Decandria-Monogynia.* Nat. Ord. *Anacardiaceæ.*

A genus of evergreen trees common in the tropics of both hemispheres, chiefly interesting for their fruits. *S. Mombin* yields an eatable fruit, called Hog Plum in the West Indies. The taste is said to be peculiar, and not very agreeable to strangers. They are chiefly used to fatten swine. *S. dulcis*, a native of the Society Islands, yields a fruit the flavor of which is compared to that of the Pineapple. The flower buds of *S. Mombin* are used as a sweetmeat with sugar. Several of the species are esteemed for their medicinal properties, and one or two are cultivated as ornamental plants.

Sponge Gourd. See *Luffa.*

Spoonwood. See *Kalmia latifolia.*

Sprekelia. Named after *Dr. Sprekel*, a German botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

S. formosissima, commonly known as *Amaryllis formosissima*, or *Jacobæan Lily*, the only described species of this genus, is a bulbous plant, with splendid dark scarlet flowers. It is called Jacobæan on account of the brilliant scarlet of its flowers, which the Spaniards in Peru thought resembled the scarlet swords worn by the knights of the order of St. James, (Jacobæus.) These bulbs succeed well planted in the open border in May. They produce their flowers in June, and the bulbs ripen off by fall, when they should be taken up and dried with the tops on, and stored in a dry room free from frost, until time for planting out again. They are desirable for pot culture, or for growing in glasses like Hyacinths, requiring the same culture. They are increased by offsets. They are natives of Guatemala. Introduced in 1658.

Spotted Cowbane. See *Cicuta maculata.*

Spotted Wintergreen. See *Chimaphila maculata.*

Spring Beauty. A local name for *Claytonia*, which see.

Spring Snowflake. See *Leucojum vernum.*

Spruce. The popular name of the genus *Abies*, which see.

Spurge. See *Euphorbia.*

Spurge Nettle. See *Jatropha* and *Ixora.*

Spurred Gentian. See *Halenia deflexa.*

Squash. (*Cucurbita melopepo.*) The history of the Squash is more obscure than that of any other vegetable of equal importance in the garden. It was found in cultivation by the Indians on the Island of Nantucket by the earliest settlers; there was, however, but one kind, the small warted Pumpkin. From this peculiar variety the common Field Pumpkin is supposed to have originated. Several varieties have been introduced from South America, and among them the Mammoth Squash from Valparaiso, the seed of which was sent here by Commodore Perry. Several other of our best sorts have been received from there and the West Indies. Their parentage, however, is entirely unknown. A large number of varieties are grown under distinctive names, many of which are cross-breeds. One hybrid variety of superior quality has been produced by one of our seedsmen, who has made that vegetable a specialty.

Squaw Root. See *Canopholis.*

Squaw Weed. See *Senecio aureus.*

Squill. See *Scilla.*

Squirrel Corn. See *Dicentra Canadensis.*

Squirrel Tail Grass. See *Hordeum.*

Stachys. Hedge Nettle. From *stachys*, a spike; their manner of flowering. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

A genus of shrubby and herbaceous plants, common throughout the United States and Europe. None of the species has any special merit, except *S. lanata*, which is used to a considerable extent in the formation of white lines for ribbon borders or massing. Propagated by cuttings.

Stadmannia. In honor of *M. Stadmann*, a German botanical traveler. *Linn. Octandria-Monogynia.* Nat. Ord. *Sapindaceæ.*

A genus of lofty-growing trees, with large, showy leaves, natives of Australia. The species have been united with *Cupania* by modern botanists. See *Cupania.*

Staff Tree. See *Celastrus.*

Stag's Horn Fern. See *Platycerium alcicorne.*

Stagger Bush. See *Andromeda mariana.*

Standing Cypress. See *Ipomopsis.*

Stanhopea. In compliment to *Earl Stanhope. Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A very beautiful genus of epiphytal Orchids, remarkable for their extraordinary flowers, curious in form and richly colored, and also for their singular habit of throwing the flower-stem from the base of the pseudo-bulbs in a downward direction. When first introduced (1830) the plants were placed in pots in the usual manner, and were supposed to be difficult to flower, until the accidental breaking of a pot exposed the flowers perishing in the soil beneath the plants. This circumstance led to the prevalent method of growing them in baskets made of small sticks of Cedar, Locust, or other woods not liable to decay, which, being open at intervals, allows the flower spikes to protrude in their natural position. Baskets about a foot and a half in diameter and six inches deep are sufficiently large for well-grown specimens. The soil should be leaf mould and sphagnum moss, about one-fourth of the latter, with small pieces of charcoal intermixed for perfect drainage. Some successful growers use only the moss and charcoal, or potsherds. Stanhopeas require plenty of water while growing. The moss should be thoroughly soaked every day, and a slight

syringing, or, what is better, a dense application of steam every night and morning. Most of the species make two growths in a year, and, with proper management, will also bloom twice; but some care is required to have the latter growth duly formed before the winter sets in, or there is much danger of their rotting. If an active growth can be started about the first of February, the first pseudo-bulbs will be formed, and the flowers fully perfected in May, which leaves good time to complete the second flowering. A temperature of from 70° to 85° will grow them best, and for the winter, or resting period, from 55° to 60° is sufficient. They do not require to be frequently shifted, but when this is done, the plant should be put, basket and all, into a larger one, as it is impossible to remove them without serious injury to the roots. They are increased by division.

Stapelia. Named by *Linnæus* after *Boderus Stapel*, a physician of Amsterdam and commentator on Theophrastus. *Linn. Pentandria-Digynia.* Nat. Ord. *Asclepiadaceæ.*

This is a genus of very curious green-house plants, with showy, star-like flowers proceeding from the base, which smell so much like carrion that flies have been known to lay their eggs upon them. As these plants are very succulent, they are apt to damp off if they are grown in rich soil or receive too much water. They are propagated by cuttings, which should be laid on the shelf for two or three days te shrivel before they are planted. All the Stapelias are natives of the Cape of Good Hope. The flowers are very singular as well as showy, and would be highly prized were it not for their offensive odor; but, notwithstanding, they are very interesting plants, and the odor is of no long continuance. Introduced in 1710.

Staphylea. Bladder Nut. Abridged from *Staphylodendron*, its ancient name, from *staphyle*, a bunch, and *dendron*, a tree; the flowers and fruit are disposed in clusters. *Linn. Pentandria-Trigynia.* Nat. Ord. *Staphylaceæ.*

A genus of deciduous shrubs, which are widely dispersed. One species, *S. trifoliata*, is indigenous in the United States. It is a handsome shrub, with terminal panicles of white flowers, produced in May.

Star Flower. See *Trientalis Americana.*

Star Grass. See *Hypoxis.*

Star of Bethlehem. See *Ornithogalum.*

Star Thistle. See *Centaurea Calcitrapa.*

Starwort. See *Aster* and *Stellaria.*

Statice. Sea Lavender, Marsh Rosemary. From *statizo*, to stop; in allusion to the powerful astringency of some of the species. *Linn. Pentandria-Polygynia.* Nat. Ord. *Plumbaginaceæ.*

Singular plants, the foot-stalks of the flowers of which are colored so as to resemble flowers, while the real flowers are the white part at the extremity of the purple. The handsomest species belonging to the genus is *S. arborea*, a native of the Canaries, which is quite shrubby. This splendid plant should have plenty of room for its roots, and thus, when there is not a conservatory for it to be planted in, it does better in the open border, with a slight protection during winter, than in a pot in a green-house. The common kinds of Statice are generally increased by seeds, or by dividing the root, and they should be allowed plenty of space, as they are easily killed when crowded by other plants. *S. Limonium*, the only species that is a native of this country, is common in salt marshes along

the Southern coast, and is gathered in considerable quantities for making winter bouquets.

Stauntonia. In honor of *Sir George Staunton*, Bart., who introduced numerous plants from China. *Linn. Monœcia-Hexandria.* Nat. Ord. *Lardizabalaceæ.*

This genus consists of but two known species, both woody climbing shrubs, from China and Japan. The flowers are produced from the axils of the leaves, and are apetalous. The plants are of easy culture, but of no special interest, excepting in botanical collections.

Stellaria. Chickweed, Star Wort. From *stella*, a star; the flowers are star-like. *Linn. Decandria-Trigynia.* Nat. Ord. *Caryophyllaceæ.*

With the exception of *S. Holostea*, a pretty little white, early spring flower, this genus is a family of weeds of the most troublesome character. There are several species indigenous in this country, all well known. *S. media*, common Chickweed, is the most troublesome weed of the garden, particularly in the fall months.

Stenactis. Probably from *stene*, narrow, and *aktin*, a sunbeam; from the narrow and sunlike rays of the expanded flower. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

A small genus of California hardy herbaceous perennials. The flowers are purple and showy. It is a desirable plant for the border. Propagated by division or from seed.

Stenia. From *stenos*, narrow; in allusion to the form of the pollen masses. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of very handsome epiphytal Orchids from New Grenada. *S. fimbriata* is a very showy plant. The leaves are long, narrow, and dark green; the flowers are bright yellow, with a paler lip, beautifully spotted with carmine, and are produced on slender scapes. There are one or two other species under cultivation. Propagated by division.

Stenomesson. From *stenos*, narrow, and *messon*, the middle; the flowers contracted in the middle. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A genus of very pretty half-hardy South American bulbs, with orange, scarlet, and yellow flowers, in umbels on a slender scape. The bulbs may be planted out in early spring in a moist situation, and they will soon come into flower. They require perfect rest during winter. Propagated from offsets. Introduced from Peru in 1843.

Stephanophysum. From *stephanos*, a crown, and *physa*, a bladder; alluding to the inflorescence. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Acanthaceæ.*

A genus of tropical herbaceous plants, natives of Central America and Africa. The flowers are mostly scarlet, produced in axillary clusters. They are very rarely cultivated.

Stephanotis. From *stephanos*, a crown, and *ototis*, eared; the ear-like processes on the crown of the stamens. *Linn. Pentandria-Monogynia.* Nat. Ord. *Asclepiadaceæ.*

These noble green-house climbers grow with great freedom when allowed sufficient root room. They may either be planted in the border of the house, and trained over the pillars and roof, or placed in a large pot having a good-sized trellis attached to it. In either position the effect produced by their deep green and ample fleshy leaves, enriched by numerous clusters of pure white waxy flowers, is, perhaps, unsurpassed. The flowers of *S. floribunda* have a strong, delicious perfume, and are much valued by the bouquet-makers. This species was introduced from Madagascar in 1830, and is the only one generally cultivated. It is much subject to the insect known as Mealy Bug, and to keep it in health this insect must be sponged off the stems and leaves as soon as it is seen. Propagated by seeds or cuttings.

Sternbergia. Named in honor of *Count Caspar Sternberg*, a celebrated German botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

This genus is usually known as *Amaryllis lutea*, and is sold as such by the seedsmen. There are only a few species, and but little difference between them; none that an amateur would be likely to notice. They are perfectly hardy, and flower in the autumn before the leaves start. The flowers are pure golden yellow, much like a Crocus, but larger, and the petals more fleshy. In the latitude of New York the bulbs should have a generous covering of salt hay or coarse litter before the ground freezes hard in the early winter. They are natives of the South of Europe and Africa. Introduced in 1596.

Steudnera. A genus of *Araceæ*, closely resembling the *Colocasia*, which see.

Stevensonia. A synonym of *Phœnicophorium*, which see.

Stevia. In honor of *Peter James Esteve, M.D.*, Professor of Botany at Valencia. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

An extensive genus of green-house perennials, nearly all natives of Mexico, and chiefly white flowered. *S. compacta*, early flowering, and *S. serrata* are grown in large quantities by the florists of New York for cut flowers for early winter sales. *S. serrata variegata*, a recent introduction, has beautiful white and green foliage, the white predominating, and it is now used very largely as a white-leaved plant for massing. It can be used at any height from one to three feet, by cutting back. Its flowers are equally useful as the green-leaved variety. The species are all of easy culture, and are propagated by cuttings.

Stigmaphyllon. From *stigma*, a stigma, and *phyllon*, a leaf; the stigma foliaceous. *Linn. Decandria-Trigynia.* Nat. Ord. *Malpighiaceæ.*

A small genus of tropical trees and shrubs. Some of the latter are climbers. They are natives of Brazil and the West Indies. A few of the species are cultivated for the sake of their fine yellow flowers and beautiful foliage.

Stipa. Feather Grass. From *stipe*, feathery or silky. *Linn. Triandria-Digynia.* Nat. Ord. *Gramineæ.*

S. pennata, the species chiefly grown as an ornamental plant, is a hardy herbaceous perennial, a native of Great Britain, and is grown for the sake of its beautifully feathered beards, which are used for winter bouquets, both in the natural color and dyed. This species is propagated by division, or from seeds sown in spring.

Stitchwort. See *Stellaria.*

Stock and Stock-Gilliflower. See *Mathiola.*

Stokesia. In honor of *Dr. Jonathan Stokes*, the coadjutor of Withering in his arrangement of British plants. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

S. cyanea, the only known species, is a pretty little herbaceous perennial evergreen, found rarely in the wet pine barrens of South Carolina and westward. Flowers bright blue, produced in large terminal heads. Propagated by division or from seeds.

Stone Crop. See *Sedum.*

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Storax. See *Styrax.*

Stork's-Bill. See *Pelargonium.*

Stramonium. See *Datura.*

Stratiotes. Water Soldier. From *stratos*, an army; in allusion to its long, sword-like leaves. *Linn. Dioecia-Dodecandria.* Nat. Ord. *Hydrocharidaceæ.*

A genus of hardy aquatics. *S. aloides*, a native of England, is a very singular plant. It resembles our Aloes in miniature; hence its specific name. It is attached to the mud by a cord-like runner, or is suspended free in the water, elevating only its flowers and a portion of its leaves above the surface. It increases very fast, and will grow freely in the aquarium. It increases too fast for small ponds, as it will soon choke out all other plants.

Strawberry. See *Fragaria.* Strawberries will grow on almost any soil, but it is all-important that it be well drained, either naturally or artificially; in fact, this is true for the well-being of nearly all plants, as few plants do well on soils where the water does not freely pass off. Thorough culture requires that the soil should be first dug or plowed, then spread over with at least three inches of thoroughly rotted stable manure, which should be dug or plowed under, so far as practicable, to mix it with the soil. If stable manure cannot be had, artificial manure, such as ground bone dust, etc., should be sown on the dug or plowed ground, thick enough to nearly cover it, then harrowed or chopped in with a fork, so that it is well mixed with the soil to at least six inches in depth. This, then, is the preliminary work before planting, to insure a crop the next season after planting—in nine or ten months. The plants must be such as are layered in pots, and the sooner they are planted out after the 15th of July, the better, although, if not then convenient, they will produce a crop the next season even if planted as late as the middle of September; but the sooner they are planted the larger will be the crop. They may be set from *pot layers* either in beds of four rows each, fifteen inches apart, and fifteen inches between the plants, leaving two feet between the beds for pathway; or be set out in rows two feet apart, the plants in the rows fifteen inches apart; and if the plants are properly set out, (care being taken to firm the soil around the plant, which is best done by pressing the soil against each plant with the foot,) not one plant in a thousand of Strawberry plants that have been grown in pots will fail to grow. For the first three or four weeks after planting nothing need be done except to hoe the beds, so that all weeds are kept down. Be careful to do this once in every ten days; for if the weeds once get a start, it will treble the labor of keeping the ground clean. In about a month after planting they will begin to throw out runners, all of which *must be pinched or cut off as they appear*, so that by the end of the growing season (1st of November) each plant will have formed a complete bush one foot or more in diameter, having the necessary matured "crowns" for next June's fruit. By the middle of December the entire beds of Strawberry plants should be covered up with salt-meadow hay (straw, leaves, or anything similar will do as well) to the depth of two or three inches, entirely covering up the plants and soil, so that nothing is seen but the hay. By April the plants so protected will show indications of growth, when the hay around each plant is pushed a little aside, to assist it in getting through the covering, so that by May the fully

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developed plant shows on the clean surface of the hay. This "mulching," as it is called, is indispensable to the best culture, as it protects the plants from cold in winter, keeps the fruit clean, keeps the roots cool by shading them from the hot sun in June, and, at the same time, saves nearly all further labor after being once put on, as few weeds can push through it. By this method we prefer to plant new beds every year, though, if desired, the beds once planted may be fruited for two or three years, as by the old plans; but the fruit the first season will always be the largest in size, if not greatest in number. Another advantage of this system is that, where space is limited, there is quite time enough to get a crop of Potatoes, Pease, Beans, Lettuce, Radishes, or, in fact, any summer crop off the ground first *before* planting the Strawberries, thus taking two crops from the ground in one year, if desired, and there is also plenty of time to crop the ground with Cabbage, Cauliflower, Celery, or other fall crop *after* the crop of Strawberries has been gathered. The plan of getting the pot layers of Strawberries is very simple. Just as soon as the fruit is gathered, if the beds are well forked up between the rows, the runners or young plants will begin to grow, and in two weeks will be fit to layer in pots. The pots, which should be from two to three inches in diameter, are filled with the soil in which the Strawberries are growing, and "plunged" or sunk to the level of the surface; the Strawberry layer is then laid on the pot, being held in place with a small stone. The stone not only serves to keep the plant in its place, so that its roots will strike into the pot, but it also serves to mark where each pot is; for, being sunk to the level of the surface, rains wash the soil around the pots, so that they could not well be seen unless marked by the stone. In ten or twelve days after the Strawberry layers have been put down the pots will be filled with roots. They are then cut from the parent plant, placed closely together, and shaded and watered for a few days before being planted out. Some plant them out at once when taken up, but, unless the weather is very suitable, some loss may occur by this method; by the other plan, however, of hardening them for a few days, not one in a thousand will fail. Strawberries for field culture are usually planted from the ordinary layers, either in August and September in the fall, or in March, April, or May in the spring. They are usually planted in rows, two to three feet apart, and nine to twelve inches between the plants. In planting, every plant should be well firmed, or great loss is almost certain to ensue, as the Strawberry is a plant always difficult to transplant. They are usually worked by a horse cultivator, and generally two or three crops are taken before the beds are plowed under; but the first crop given (which is in the second year after planting) is always the best. The same care must be taken as in planting by pot layers, the ground must be kept clear of weeds, and the runners pinched or cut off to make fruiting crowns. By the usual field method of culture, it will be seen that there is a loss of one season in about three; for in the year of planting no fruit, of course, is produced, and for this reason we incline to the belief that, if a portion were set aside to produce early plants, so that pot layers could be set out by the 15th of July, a full crop of the finest fruit could be had every

season, and with less cost, we think; for the only labor after planting is to keep the ground clean and pinch off the runners from July to October, with the certainty of getting a full crop next June, or in less than a year from the time of planting, while by planting by ordinary layers, if planted in August, we have three months of fall culture, and six or seven months of the next summer's culture, before a crop is produced. Again, if the crop is continued to fruit the second or third year, every one who has had experience with the nature of the plant knows that the labor of keeping the plants free from weeds is enormous; while by the pot layering method of taking a fresh crop each year, all such labor is dispensed with. It is useless to name any special varieties of the Strawberry as best to cultivate. We have now thousands under cultivation, and such kinds as we might now name as the best will, a few years hence, be superseded. It is best to select from the annual catalogues of some responsible nurseryman or florist, where descriptions are usually fully given.

Strawberry Bush. See *Euonymus Americanus*.

Strawberry Shrub. See *Calycanthus floridus*.

Strawberry Tomato. See *Physalis Alkekengi*.

Strelitzia. Named in honor of the Queen of George III., from the house of Mecklenburgh-Strelitz. *Linn. Pentandria-Monogynia.* Nat. Ord. *Musaceæ*.

These are handsome plants, with large, pale-green leaves, and singular, richly-colored flowers. *S. reginæ* is the most common, and perhaps the most beautiful; its flowers are brilliant orange and purple. It is usual to grow the species as hot-house plants, but they succeed almost equally well in the green-house, placed in large pots of rich loam, and kept in a light part of the house at all times, except for a couple of months, between June and September, when they are best out of doors. They will thus grow and flower finely. The species are all natives of the Cape of Good Hope, and were introduced in 1773. Propagation is slow, and is effected by suckers, or from seed, when it can be obtained.

Streptocarpus. From *streptos*, twisted, and *carpos*, a fruit; referring to its long, twisted seed pods. *Linn. Diandria-Monogynia.* Nat. Ord. *Gesneraceæ*.

A very neat and pretty dwarf plant, with velvety leaves and lilac flowers, produced freely all the summer. It may be grown in the green-house, or used as a bedding plant for the open border, where, in a warm situation, it will produce a multitude of flowers. It will bear almost any treatment, but does best in pots of light, sandy soil, and with plenty of heat in the early stages of its growth, say from March to May, after which a cool house or the open air will preserve its flowers for a long time, and, being produced in rapid succession, the plant will be an object of beauty for at least four or five months. They should have rest during winter, like other green-house herbaceous perennials. They are all interesting plants. Introduced from Natal in 1854. Propagated by division.

Strumaria. From *struma*, a tubercle; the style is enlarged at the bottom. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ*.

A small genus of interesting bulbs from the Cape of Good Hope. The flowers are red, white, or pink, somewhat resembling the *Nerine*, to which this genus is allied. They are of dwarf habit, well adapted for green-house culture, and succeed with but little care, the main requisite being to secure a good growth of foliage after flowering, as the flowers for the coming season will correspond, in size and strength, to the growth of leaves. Propagated by offsets. Introduced in 1812.

Struthiopteris. From *strouthios*, an ostrich, and *pteris*, a fern; resemblance of the leaves, or fronds, to its feathers. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ*.

A small genus of hardy Ferns, with strong, erect-growing fronds. *S. Germanica*, popularly known as the Ostrich Fern, is common in most of the Northern States. The species are also to be found in India and Japan. Professor Gray makes *S. Pennsylvanica*, Willd., and *Onoclea Struthiopteris*, L., synonymous with *S. Germanica*.

Strychnos. Nux Vomica. The Greek name of the *Solanum*. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ*.

A small genus of evergreen trees, natives of the East Indies. *S. Nux-vomica* is well known, from the seeds that bear that name, and which contain an active principle called *Strychnia*, a virulent poison. This species is a tree of moderate size, much branched, and covered with dark gray, smooth bark. The flowers are small, bell-shaped, and nearly white. The tree has nothing of special interest, if we except its power for evil. The seeds of *S. potatorum* show a marked contrast to the preceding. They are an important article of merchandise in the Indian bazaars, being sold for the purpose of clearing muddy water, the vessels containing the water being rubbed for a minute or two round the inside with one of the seeds; after which, by allowing the water to settle for a short time, however impure and muddy it may have been before, it becomes clear and wholesome.

Stuartia. Named after *John Stuart*, Marquis of Bute. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Ternstromiaceæ*.

A small genus of hardy deciduous shrubs, with axillary white flowers. They are indigenous in Virginia and southward.

Stylidium. From *stylos*, a column; the stamens and style are joined into a column *Linn. Gynandria-Diandria.* Nat. Ord. *Stylidiaceæ*.

A genus of evergreen and herbaceous plants from New Holland. They are all neat little green-house plants, each of the numerous stems producing a copiously-filled spike of small rose-colored flowers. They should be cut down annually after flowering, and require some care to preserve them free from mildew through the damp weather of winter. A light, airy shelf is the best preventive, and a sprinkling of sulphur on the affected parts will generally remove it. Propagated by cuttings of young shoots. Introduced in 1824.

Styphelia. From *styphelos*, hard; referring to the wood. *Linn. Pentandria-Monogynia.* Nat. Ord. *Epacridaceæ*.

A genus of green-house evergreen shrubs, harsh, erect, and low-growing. They have usually pink or scarlet flowers, axillary and drooping. *S. tubiflora* and a few other of the species are very beautiful plants, their showy flowers completely covering the stems, and remaining several weeks in perfection. They should be grown and propagated like the *Epacris*.

Styrax. Storax. From the Arabic. *Linn. Decandria-Monogynia.* Nat. Ord. *Styraceæ*.

SUC

A genus of handsome flowering, hardy deciduous shrubs and low-growing trees, well adapted for the shrubbery border. Several of the species are common on the margins of swamps from Virginia southward. The most important species is *S. Benzoin*, a native of Borneo and Sumatra. It yields the resin called Benzoin, which is employed medicinally, and also in the manufacture of perfumes. It is used in the Roman Catholic Churches in the composition of incense. *S. officinale*, a native of the Levant, yields a balsamic resin called Storax. Among some of the species of recent introduction is *S. Japonica*, known, from its feathery white blossoms, as "Snow-flake Flower." It is a shrub growing about four feet in height, and is hardy in the vicinity of New York. All are propagated freely from cuttings.

Succory. See *Cichorium.*

Sugar Beet. See *Beta.*

Sugar Berry. The fruit of *Celtis occidentalis*, which see.

Sugar Cane. See *Saccharum officinarum.*

Sumach. See *Rhus.*

Summer Savory. See *Satureia hortensis.*

Sundew. See *Drosera.*

Sundrops. See *Œnothera fruticosa.*

Sunflower. See *Helianthus.*

Sun Rose. See *Helianthemum.*

Sutherlandia. Named in honor of *James Sutherland*, one of the first superintendents of the Royal Botanical Garden at Edinburgh, and author of a botanical catalogue. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

Very showy half-hardy evergreen shrubs, producing freely during summer axillary clusters of scarlet flowers. The plants are too large for ordinary green-house culture, and do not repay the cost of winter protection in the border. *S. microphylla* is one of the best. Introduced from the Cape of Good Hope in 1800.

Swainsonia. In honor of *Isaac Swainson, F.R.S., L.S.*, a celebrated cultivator of plants about the end of the last century. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

This genus closely resembles the preceding. It is, however, better adapted for pot culture in the green-house, in which case the young wood should be frequently cut back in spring; and after flowering the stems should be cut down to prevent the plants from becoming straggling and unsightly. There are four species under cultivation, having purple, red, or white flowers, produced singly or in pairs on short axillary peduncles. *S. galegifolia* is a well-known species. They are all from Australia. Propagated from cuttings and by seeds. Introduced in 1826.

Swamp Honeysuckle. See *Azalea viscosa.*

Swamp Moss. See *Sphagnum.*

Swamp Sassafras or Laurel. See *Magnolia glauca.*

Sweet Alyssum. See *Koniga.*

Sweet Basil. See *Ocymum.*

Sweet Bay. See *Laurus nobilis* and *Magnolia glauca.*

Sweet Brier. See *Rosa rubiginosa.*

Sweet Cicely. See *Osmorhiza.*

Sweet Clover. See *Melilotus alba.*

Sweet Fern. See *Comptonia.*

Sweet Flag. See *Acorus.*

Sweet Gale. See *Myrica gale.*

Sweet Gum Tree. See *Liquidambar styraciflua.*

Sweet Leaf. See *Symplocus tinctoria*, the leaves of which are sweet, and greedily eaten by cattle.

Sweet Marjoram. See *Origanum majorana.*

SYM

Sweet Pea. See *Lathyrus odoratus.*

Sweet Pepperbush. See *Clethra.*

Sweet Potato. See *Potato.*

Sweet-scented Shrub. See *Calycanthus floridus.*

Sweet Sultan. See *Centaurea moschata.*

Sweet Vernal Grass. See *Anthoxanthum odoratum.*

Sweet William. See *Dianthus barbatus.*

Swertia. Named after *E. Swert*, a famous cultivator of bulbs and flowers in Holland. *Linn. Pentandria-Digynia.* Nat. Ord. *Gentianaceæ.*

A genus of herbaceous perennials, mostly hardy. They are natives of Europe, Asia, and Northern India. The leaves are used in their native countries medicinally. None of the species are valuable as flowering plants.

Swietenia. Mahogany. In honor of *Gerard Van Swieten*, a Dutch botanist and author. *Linn. Decandria-Monogynia.* Nat. Ord. *Cedrelaceæ.*

"The Mahogany Tree, *S. mahagoni*, is a native of the West Indies, Central America, and Mexico, and is one of the most majestic of trees; for though some rise to a greater height, this tree, like the Oak and the Cedar, impresses the spectator with the strongest feelings of its firmness and duration. In the rich valleys among the mountains of Cuba, and those that open upon the Bay of Honduras, the Mahogany expands to so huge a trunk, divides into so many massive arms, and throws the shade of so many shiny green leaves, spotted with tufts of pearly flowers, over so vast an extent of surface, that it is difficult to imagine a vegetable production combining in such a degree the qualities of elegance and strength, of beauty and sublimity. The Mahogany tree is found in great quantities on the low and woody lands, and even upon the rocks in the countries upon the western shores of the Caribbean Sea, about Honduras and Campeachy. It is also abundant in the islands of Cuba and Hayti, and it used to be plentiful in Jamaica, where it was of excellent quality, but most of the larger trees have been cut down. It was formerly abundant on the Bahamas, where it grew to a great height, with the trunks four feet in diameter. When it grows in favorable situations the timber is larger and plain; the better portion, such as is used for veneers, comes from the junction of the branches with the body, or crotches, as they are commonly termed. The trees that grow in rocky and exposed situations do not grow as large, but the timber is more solid, has a greater variety and shade of grain, is much stronger, and in all ways preferable for cabinet work." The Baywood and Spanish Cedar of commerce are of the same species, but are of larger growth, and the wood is very coarse and soft. It is used principally in making segar boxes or similar work.

Swiss Chard. See *Beta.*

Sycamore. See *Platanus occidentalis.*

Symphoricarpus. Snowberry. From *symphoreo*, to accumulate, and *karpos*, a fruit; in allusion to its clustered bunches of fruit. *Linn. Pentandria-Monogynia.* Nat. Ord. *Caprifoliaceæ.*

A genus of hardy deciduous shrubs, common in most of the States. Some of them are quite ornamental, and are cultivated in the shrubbery border. They grow so freely, and sucker so much, that it is difficult to keep them under subjection. *S. racemosus*, the Snowberry, has pinkish flowers, disposed in loose racemes, which are succeeded by large white berries, which are very ornamental, and remain on the bush until nearly winter, making it conspicuous in the border. The variegated variety is a fine plant.

SYM

Symphytum. Comfrey. From *symphyo*, to make unite, and *phyton*, a plant; in reference to the healing qualities of the plant. *Linn. Pentandria-Monogynia.* Nat. Ord. *Boraginaceæ.*

A genus of coarse-growing, weedy plants, formerly esteemed for their medicinal properties, and of the first importance in a collection of herbs. They have become naturalized in this country from Europe, and are common around old gardens and in moist places. *S. asperrimum* was introduced into this country for use as a forage plant in 1875, but does not as yet seem to be much valued. Propagated by seeds or by roots.

Symplocarpus. Skunk Cabbage. From *symploke*, connection, and *karpos*, fruit; descriptive of the plant. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Orontiaceæ.*

A worthless, coarse-growing weed, common in swamps and wet meadows from Virginia to Maine. *S. fœtidus*, the only known species, is the common Skunk Cabbage, and is readily known by its skunk-like odor when the leaves are bruised.

Synadenium. A genus of *Euphorbiaceæ*, closely allied to *Euphorbia*, and of which there are but three species known. *S. Grantii*, an African species, introduced in 1867, is cultivated for its bright crimson flowers, which are showy and attractive.

Syngonium. From *syn*, together, and *gonu*, an angle. *Linn. Monœcia-Polyandria.* Nat. Ord. *Araceæ.*

S. auritum, the only known species, is a native of South America, and has been a long time under cultivation as *Caladium auritum.*

Syringa. The Lilac. From *syrinx*, a pipe; the branches are long and straight, and filled with *medulla;* hence the old name of the Lilac, Pipe Tree. The English name of the genus is from

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lilac or *lilaq*, the Persian word for the flower. *Linn. Diandria-Monogynia.* Nat. Ord. *Oleaceæ.*

A genus of well-known deciduous shrubs, with purplish or white flowers, natives of Southeastern Europe, Persia, Northern India, and China. All the species are perfectly hardy, and are easily grown. *S. vulgaris*, the common Lilac, with purple or white flowers, is of doubtful origin, though generally credited to Persia. It has been under cultivation for more than three hundred years, and from the species several varieties have been obtained, but without any marked peculiarities. *S. Chinensis* is an allied species, differing only in size. It does not grow as high, has narrower leaves, and the inflorescence is more profuse, and of a reddish-violet hue. *S. Persica*, Persian Lilac, is a very distinct species, of much smaller size, rarely growing more than six feet high; the branches are slender and straight, the leaves are smaller and narrowed at the base. The flowers are produced in looser panicles, and the florets are smaller, giving the whole plant a more graceful appearance. The white Persian Lilac is now forced for winter flowers, which are highly prized for baskets and bouquets. A great variety of well-marked seedlings has recently been raised by a Canadian nurseryman, some of which promise well. All the species are rapidly increased from layers, or from suckers, the only trouble being, that they increase so fast as to be troublesome. That the Lilac has been cultivated for centuries there is plenty of evidence. We have personally gathered specimens growing with Parsley (*Apium petroselinum*) in the débris of castles in Great Britain that had been in ruins for over three hundred years, showing that the warlike barons, or their wives, had some taste for the ornamental as well as the useful, even in those early days.

Syringa. See *Philadelphus.*

T.

Tabernæmontana. Named in honor of *James Theodore Tabernæmontanus*, a celebrated physician and botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

This genus is composed of very handsome hot-house shrubs, with deep green foliage and large white or yellow flowers possessing an agreeable fragrance. After blooming they should receive a moderate pruning to keep them bushy and increase the number of flower heads. The large, leathery leaves of this and other similar genera are inducements, in the way of shelter, to many troublesome insects, such as thrips, scale, and mealy bug; to eradicate these, and keep the plants healthy, they should be frequently washed, each leaf separately, with a sponge and soap and water, or the latter alone, and at intervals receive a sprinkling with a syringe to clean them of dust, which in itself is prejudicial to all plants, and gives encouragement to the insects by causing a languid action in the leaves. The several species are mostly natives of the East Indies, but a few are distributed throughout the West Indies and South America. Propagated by cuttings. Introduced in 1770.

Tackamahack, Balsam Poplar. See *Populus balsamifera.*

Tacca. The Malay name of the species. *Linn. Hexandria-Monogynia.* Nat. Ord. *Taccaceæ.*

A genus of East Indian plants, grown by the natives for their bulbs, which resemble new Potatoes, and contain a large amount of starch. The various species grow in the open country. *T. pinnatifida* is generally found in sandy places near the sea. The leaf-stalks of this species are plaited into bonnets by the natives of the Society Islands, but the principal use made of all the species is that of their tubers, which, resembling new Potatoes, contain a great deal of starch, known as South Sea Arrowroot, and far preferable to any other Arrowroot in cases of dysentery. The tubers are dug up after the leaves have died away, and are rasped and macerated four or five days in water, when the fecula separates in the same manner as Sago does. It is largely employed as an article of diet throughout the tropics, and is a favorite ingredient for puddings and cakes in the South Seas. The species are rarely seen in plant collections.

Tacsonia. From *Tacso*, the name of one of the species in Peru. *Linn. Monadelphia-Pentandria.* Nat. Ord. *Passifloraceæ.*

A genus of very beautiful climbing plants, closely related to *Passiflora*, having the same

general appearance, and the same structure of stamens, pistils, and fruit, but differing in the usually long, cylindrical tube of the calyx, which is furnished with two crowns, one at the throat, and the other near its base. In *T. manicata*, however, a very handsome species, the tube scarcely exceeds in length that of a Passion Flower. The species are natives of Central America and the West Indies. The fruits of several of them, as *T. mollissima*, *T. tripartita*, and *T. speciosa*, are edible. *T. Buchanani* is now *Passiflora racemosa*, and is one of the most beautiful plants of the order. (See *Passiflora*.) It was raised from seed by Mr. Isaac Buchanan of New York. The Tacsonias are all beautiful plants, and worthy of a place in any collection. They require the same general treatment as *Passiflora*, and are propagated in the same way. Introduced in 1815.

Tagetes. Marigold. From the beauty of its flowers, this genus was named after *Tages*, a Tuscan divinity. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

Marigolds are old favorites in our gardens, particularly those known as African and French Marigolds. The former (*T. erecta*) have uniformly large yellow or orange-colored flowers, and usually attain a couple of feet in height; the latter (*T. patula*) are more dwarf, and have their flowers striped of a deep brown purple and yellow. They are all showy, especially in masses, and are effective for distant groups. There is, however, another species, *T. tenuifolia* or *T. signata*, preferable for bedding; it is more compact in habit; and though its flowers do not boast the vivid coloring of the French Marigolds, (being entirely yellow,) yet they are produced in such long succession as to amply compensate for the deficiency; besides which, the scent so frequently complained of in the others is in this so much reduced as to be no longer unpleasant. The pheasant-eyed variety of *T. daucioides* is also occasionally grown in gardens, and is very showy. These comprise all that are worth cultivating as ornamental plants, and require precisely the same treatment as other hardy annuals.

Talinum. Supposed to be from *thalia*, a green branch; referring to its durable verdure. *Linn. Dodecandria-Monogynia.* Nat. Ord. *Portulacaceæ.*

A genus of annual and biennial succulent plants, inhabiting the warmer parts of both hemispheres, but chiefly confined to sub-tropical America. *T. patens*, with its variety with variegated foliage, a native of Brazil, is a desirable plant for the border, or as a basket or vase plant, being well adapted to stand hot, dry weather, and does not suffer badly if neglected. The variegated variety is often used as a white line for ribbon borders. This species is used in Brazil as a pot-herb. They are readily propagated by seeds or cuttings. Introduced in 1776.

Tallow Tree. See *Stillingia.*

Tamarack. American or Black Larch, Hackmatack. See *Larix Americana.*

Tamarind. See *Tamarindus.*

Tamarindus. Tamarind Tree. *Tamar*, in Arabic, is the name of the Date, and *Indus*, Indian, *Indian Date. Linn. Monadelphia-Decandria.* Nat. Ord. *Papilionaceæ.*

The tree that furnishes the *Tamarinds* for preserves is a native of the East Indies, West Indies, Egypt, and Arabia. It is a large, spreading, and beautiful tree, and its graceful pinnated foliage, and racemes of fragrant flowers,

which are yellow striped with red, with purple stamens, give it an elegant appearance. *T. Indica* is the only known species, and this varies but little in the different countries in which it abounds. Propagated from cuttings and by seeds. Introduced in 1633.

Tamarisk. See *Tamarix.*

Tamarix. Tamarisk. From *Tamaris*, now Tambro, the name of a river where it grows, on the borders of the Pyrenees. *Linn. Pentandria-Trigynia.* Nat. Ord. *Tamaricaceæ.*

Tall-growing shrubs, mostly natives of Europe. A great many species are enumerated, but two only are usually met in collections of ornamental shrubs. These are *T. Gallica*, the French Tamarisk, and *T. Germanica*, the German Tamarisk. The French Tamarisk is far the handsomest, and will thrive in almost any soil or situation; in bleak exposed places on the seashore, in the poorest sandy soils, it never fails to succeed, and produce its long, terminal, graceful spikes of pinkish flowers. It will do equally well in city yards, that are exposed to sun, soot, and smoke. It is, in short, one of our most valuable ornamental shrubs. The Manna of Mount Sinai is produced by a variety of *T. Gallica;* it consists wholly of pure, mucilaginous sugar. *T. Africana* is quite commonly grown. The plants are increased by cuttings taken off in the fall and put out in nursery rows.

Tampico Fiber. See *Leopoldinia.*

Tanacetum. Tansy. Derivation of name unknown. Said to be altered from *Athanasia. Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

All the species that compose this genus are hardy herbaceous plants, or what might properly be called weeds. *T. vulgare* is the common Tansy of the old gardens and roadsides. It was formerly introduced as a garden plant, and took a prominent position among domestic medicines, but is now pretty generally discarded. It has escaped from the gardens, and has long been naturalized in the United States. It is a native of Europe.

Tansy. See *Tanacetum.*

Tape Grass. See *Vallisneria.*

Tapioca. See *Jatropha.*

Taraxicum. Dandelion. Name supposed to be from the Greek *tarazo*, to disquiet or disorder; in allusion to the medicinal effects of the plant. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ.*

The common Dandelion, *T. Dens-leonis*, is a native of Europe, but has become so thoroughly naturalized as to be a very troublesome weed. The roots have powerful medicinal properties, and are held in high esteem by the Eclectic practitioners. The leaves are used as a pot-herb, for which purpose the plants are grown in frames by the market gardeners of nearly all large cities. It is also used as an early spring "greens," and is cultivated for this purpose in both private and market gardens. This was one of the plants selected by Linnæus for his floral clock, as the flowers open and close at a regular hour, morning and evening. Propagated by seeds.

Tare. See *Vicea sativa.*

Tarragon. (*Artemisia Dracunculus.*) This, like many garden plants that have been under cultivation for at least 400 years, is of unknown origin. Opinions are divided as to whether it is a native of Siberia or the south of Europe. It is a hardy herbaceous perennial, cultivated for its leaves and young shoots, both of which are used as an ingredient in salads, soups, stews, pickles,

and various other compounds. Tarragon vinegar, so much esteemed as a fish-sauce, is made by an infusion of the leaves in common vinegar. It is propagated from seeds, or from pieces of the root, every portion of which, however small, will grow if a single bud is left on.

Tartarian Lamb. See *Cibotium.*

Taxodium. Bald Cypress, Deciduous Cypress. From *taxus*, the Yew, and *oides*, like; trees resembling the Yew. *Linn. Monœcia-Octandria.* Nat. Ord. *Pinaceæ.*

T. distichum, the deciduous Cypress, abounds in the Southern States, growing as far north as Delaware and Southern Illinois. It is one of the most valuable trees for timber, and is considerably grown as an ornamental tree for the lawn. It is perfectly hardy as far north as New York. Beautiful specimens are often seen on lawns, where their feathery foliage renders them attractive objects.

Taxus. Yew. From *taxon*, a bow; the wood anciently used for bows; or from *taxis*, arrangement, the leaves being arranged on the branches like the teeth of a comb. Yew is supposed to be from the Celtic word *iw*, signifying verdure; alluding to the Yew being an evergreen. *Linn. Dioecia-Polyandria.* Nat. Ord. *Taxaceæ.*

A genus of well-known evergreen trees, popularly known as the Irish Yew. They are compact in habit, their branches being densely crowded with leaves; they are also upright, the branches all perpendicular, giving the tree a small circumference for its height. On this account, it is a favorite tree for cemeteries and church-yards. There is a native species, *T. baccata*, var. *Canadensis*, commonly known as Ground Hemlock or American Yew, common in the more Northern States, on moist banks and hills. It rarely grows more than four feet high, and is branching and straggling in habit. *T. baccata*, the Common Yew of England, is the species from which the ancient English bows were made. Loudon says: "In the days of archery the Yew was the principal wood used for the bow in Britain, and in the reign of Henry VIII. of England, the demand was so great that it had to be imported from the Continent of Europe into England, and various laws were passed concerning it from the days of Edward IV. to Elizabeth."

Tea. See *Thea.*

Tea-Berry. A local name sometimes given to the Wintergreen, *Gaultheria procumbens*, which see.

Teak Tree. See *Tectona.*

Tear Thumb. A name commonly applied to several species of *Polygonum*, on account of their rough, bearded stems, which lacerate when handled.

Teasel. See *Dipsacus.*

Tecoma. From *Tecomaxochill*, the Mexican name of the species. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Bignoniaceæ.*

A genus of hardy deciduous and green-house evergreen climbing shrubs, consisting of upward of fifty species. They are mostly South American plants. *T. radicans*, or Trumpet Creeper, in general cultivation, is a native species, common from Pennsylvania to Illinois and southward. It is well adapted for covering walls or arbors in the open border, being perfectly hardy, and a rapid grower; the flowers are large, tubular, and a brilliant orange. *T. grandiflora* is nearly allied to *T. radicans*, but has larger flowers, of a deeper shade of orange. These two species are commonly known among us

as Bignonias. Some of the green-house species are objects of great beauty, but as they flower in summer, they are not as generally grown as they should be. All the species are propagated from cuttings of the root or suckers.

Tectona. Teak Tree. From *Tekka*, its Malabar name. *Linn. Pentandria-Monogynia.* Nat. Ord. *Verbenaceæ.*

This is a celebrated timber tree of the East Indies, used for ship-building in preference to all other woods, because of its strength, great durability, the ease with which it can be worked, and its non-liability to be injured by the attacks of Fungi. Some of the species have been introduced into the green-house. They are very handsome trees, with purple or white flowers. Their size prevents their general introduction.

Telfairia. Named in honor of *Mrs. Telfair. Linn. Dioecia-Monadelphia.* Nat. Ord. *Cucurbitaceæ.*

T. pedata, the only known species, is a tall climbing plant, a native of Zanzibar, introduced in 1825, but rarely grown, the room and care required in the green-house being considered too valuable for a plant only remarkable for its curious fruit, which often grows three feet long, and six to eight inches in diameter, containing upward of two hundred and fifty circular seeds, about an inch in diameter. These seeds yield an excellent oil, and they are, moreover, as palatable as almonds. See *Joliffia.*

Telopea. Warratah. From *telopas*, seen at a distance; alluding to the great distance at which its crimson-colored flowers may be seen in its native country. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Proteaceæ.*

The brilliant scarlet flowers of this plant, which are conspicuous even at a great distance, are said to have been one cause why the coast of New South Wales was distinguished by its first visitors as Botany Bay in allusion to the great accession to botany likely to be derived from a country where the plants appeared so different from those of Europe. The flower of the Warratah may be compared to a gigantic head of clover of the most intense and brilliant scarlet, but it is not common, probably because it is a very difficult plant to manage. The first point to be attended to is to have the pot in which it is grown thoroughly well drained, and the next, to allow it abundance of light and air. It is propagated by cuttings or suckers, which it throws up in abundance. It should be regularly watered in the flowering season, but it may be kept almost dry during the winter months.

Teosinte. *Euchlœana luxurians.* The seeds of this were received here in 1879 from the Royal Gardens at Kew, England. It had been previously sent to the British colonies in Africa and other tropical latitudes, where the reports from it as a fodder crop were of the most extravagant kind. When fully developed, it reaches a height of twelve feet, each seed making a plant having from one hundred to one hundred and twenty shoots, when planted five or six feet apart. It somewhat resembles the Pearl Millet, and, like it, will admit of repeated cuttings during the growing season. Although perennial, it will probably do better if treated as an annual, sowings to be made every season, as any plant of that luxuriance would quickly exhaust the soil if allowed to remain the second year. As it is closely allied to our Maize, or Indian Corn, it will likely be best suited for the Southern States.

Tephrosia. Hoary Pea, Goat's Rue. From *te-*

phros, ash-colored; in allusion to the color of the foliage of some of the species. *Linn. Diadelphia-Dodecandria.* Nat. Ord. *Fabaceæ.*

An extensive genus of hardy and green-house herbaceous plants. Of the hardy species, *T. Virginiana* is the more common and beautiful. It is usually found in clumps from one to six feet in diameter, growing on dry, sandy soils, in which it succeeds finely, and is a valuable border plant. Its flower stalks are about a foot high, and flowers creamy white and rosy purple, produced in terminal clusters in July. It is very common in the Northern States, and is far more showy and attractive than many of our prominent garden flowers. The tender varieties, requiring the protection of the green-house, are difficult to manage, and do not repay the trouble by their short season of flowers.

Terminalia. From *terminus*, end; the leaves are in clusters at the ends of the branches. *Linn. Polygamia-Monœcia.* Nat. Ord. *Combretaceæ.*

An extensive genus of tropical evergreens, found occasionally in botanical collections. The fruits of several of the species form an important article of commerce in India, being extensively used for tanning and dyeing purposes. They are known in commerce under the name of Myrobalans, and are used by calico-printers for the production of a permanent black.

Testudinaria. Elephant's Foot. From *testudo*, a tortoise; resemblance of the outside roots. *Linn. Dioecia-Hexandria.* Nat. Ord. *Dioscoreaceæ.*

A very singular genus of plants, with enormous scaly roots above ground, some of the species resembling an elephant's foot, whence the common name. From these roots rise slender climbing stems to the height of thirty or forty feet, with small heart-shaped leaves, and axillary racemes of inconspicuous, greenish-yellow flowers. The plants are natives of the Cape of Good Hope, and are rarely met in collections.

Tetragonia. New Zealand Spinach. From *tetra*, four, and *gonia*, an angle; in allusion to the fruit being four angled. *Linn. Icosandria-Dipentagynia.* Nat. Ord *Tetragoniaceæ.*

Plants not worth cultivating, except *T. expansa*, which is used as a Spinach. See *New Zealand Spinach.*

Teucrium. Germander, Wood Sage. Named after *Teucer*, a Trojan prince, who first used it medicinally. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

Hardy, half-hardy, and tender perennial, biennial, annual, and shrubby plants, the smaller kinds of which are suitable for rock-work. Some of the kinds are showy border flowers, and others handsome green-house shrubs, particularly those that are natives of Madeira. *T. Betonicum* is perhaps one of the best of these, as it has loose spikes of fragrant crimson flowers. *T. Canadense*, American Germander, is common in low grounds, along fence-rows or waste places. It is a species that will become troublesome if not exterminated. It is not worthy a place in the garden.

Thalia. Named in honor of *J. Thalius*, a German physician. *Linn. Monandria-Monogynia.* Nat. Ord. *Marantaceæ.*

A small genus of aquatic plants, natives of South Carolina and the West Indies. *T. dealbata* is an aquatic plant, a native of South Carolina, with very curious black and white fragrant flowers. It is about as hardy as *Richardia Æthiopica*, and requires the same treatment.

Thalictrum. Meadow Rue. From *thallo*, to grow

green; in allusion to the color of the young shoots. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

A genus of hardy herbaceous plants, common throughout the United States and Europe. None of our native species have been much introduced into the flower garden, although many of them are worthy of a place there. *T. alpinum* is a dwarf species with white or yellow flowers, and makes a pretty plant for rock-work. There are several of the species that are grown for the same purpose. *T. aquilegifolium*, a native of Austria, is a very pretty border plant, with light purple flowers. It is propagated by division or from seeds.

Thatch Palm. See *Sabal Blackburniana.*

Thea. Tea. From *Tcha*, the Chinese name for Tea. *Linn. Monadelphia-Polyandria.* Nat. Ord. *Ternstromiaceæ.*

Thea and *Camellia* belong to the same natural order, and there is so little difference between the two, botanically, that they were formerly classed as one. Besides the well-known Tea plant, there are but five species, all natives of India, China, and Japan. They are all evergreens, either shrubs or small trees, with thick, shining leaves, and white or rose-colored flowers. We are indebted to the Treasury of Botany for the following concise history of this plant: "The native country of the Tea plant, like that of many others which have long been cultivated by man, is uncertain. Hitherto the only country in which it has been found in a really wild state is Upper Assam; but China, where it has for so many centuries been most extensively cultivated, has not yet received so thorough an exploration by botanical travelers as to warrant the assertion that it is not indigenous to any part of that vast empire. A Japanese tradition, however, which ascribes its introduction into China to an Indian Buddhist priest who visited that country in the sixth century, favors the supposition of its Indian origin. It was at one time commonly supposed that the two well-marked sorts of Tea, Black and Green, were the produce of distinct species; but Mr. Fortune has proved that the Chinese manufacture the different kinds indiscriminately from the same plant; and botanists are now pretty generally agreed that the two supposed Chinese species, called *T. Bohea* and *T. viridis*, are nothing more than varieties of one and the same species, for which the Linnæan name, *T. Chinensis*, is adopted, and of which the Assam Tea plant (sometimes called *T. Assamica*) is merely a third variety, or perhaps, indeed, the wild type. Though the produce of the same variety of the Tea plant, the Black and Green Teas prepared for exportation are mainly the growth of different districts of China, the Black Tea district being situated in the provinces of Fokien and Kiangsi, and the Green in Chekiang and Nganwhi; but the two kinds may be produced in either district, the difference being caused solely by the diverse methods of preparation. For the manufacture of Black Tea, the freshly-gathered leaves, freed from extraneous moisture by a short exposure in the open air, are thrown, in small quantities at a time, into round, flat iron pans, and exposed to gentle fire-heat for about five minutes, which renders them soft and pliant, and causes them to give off a large quantity of moisture. After this they are emptied out into bamboo sieves, and while still hot, repeatedly squeezed and rolled in the hands to give them

their twist or curl. They are next shaken out into large screens, and placed in the open air in the shade for two or three days; and finally exposed in iron pans to a slow and steady fire-heat until completely dried, care being taken to keep them in constant motion to prevent burning. The chief difference in the manufacture of genuine Green Tea consists in the leaves being so long exposed to the air after rolling that fermentation does not take place, and in not being subjected to such a high temperature in the final drying; but the greater part, if not the whole, of the Green Tea consumed in Europe and America is colored artificially by the Chinese to suit foreign trade. The Chinese distinguish a great number of varieties of Tea, some of which sell for $12.50 per pound; but these fine kinds will not bear a sea-voyage, and are used only by the wealthier classes in China and Russia, to which country they are carried overland. In ordinary commerce four kinds of Black and six of Green Tea are recognized; but the difference between them consists chiefly in size, the several kinds being obtained by sifting." The Agricultural Department at Washington in the past four years has distributed hundreds of thousands of Tea plants in different sections of the Southern States, and experiments at this date of writing are under way that may yet result in great value to the country.

Theobroma. Chocolate Tree. Linnæus named this tree from *Theos*, a god, and *broma*, food; poetically, food for the gods. *Chocolate* is the Mexican name of the beverage made from the pounded seeds. *Linn. Polyadelphia-Decandria.* Nat. Ord. *Sterculiaceæ.*

T. Cacao is the important species of this genus, a native of the West Indies and Central and South America. It is a beautiful tree, growing from twelve to sixteen feet high; the leaves are lanceolate, oblong, bright green; the flowers are small, reddish, and quite inodorous. The fruit is smooth, of a yellow or red tinge, from six to ten inches in length, and about three inches in diameter; the rind is fleshy, about half an inch in thickness; within the flesh is a white substance of the consistence of butter, separating from the rind when ripe, and adhering only to it by filaments, which penetrate it and reach to the seeds. Hence it is known when the seeds are ripe by the rattling of the capsule when shaken. The pulp has a sweet and not unpleasant taste, with a slight acidity. It is sucked and eaten raw by the natives. The seeds are about seventy-five in number. When fresh they are of a flesh-color; gathered before being quite ripe, they make a delicious preserve. The tree bears leaves, flowers, and fruit, all the year through; but the principal seasons for gathering the fruit are June and December. When ripe, the fruit turns yellow outside, and is then gathered by hand, and afterward split open and the seeds removed. They are then made to undergo a slight amount of fermentation, or sweating, lasting from one to two days, for the purpose of developing their color, and are afterward exposed to the sun daily for about two weeks, or until they are thoroughly dry, when they are packed for exportation.

Theophrasta. Named after *Theophrastus*, the father of natural history. *Linn. Pentandria-Monogynia.* Nat. Ord. *Myrsinaceæ.*

A small genus of tropical shrubs, with unbranched stems, bearing on top tufts of holly-like leaves, from the axils of some of which the racemes of flowers are produced. Several of the species are in cultivation in the green-house, and are highly esteemed for their beautiful foliage. One of the species, *T. Jussieui*, a native of San Domingo, yields a seed from which the natives make a kind of bread. Young plants are obtained from seeds or from cuttings. Introduced in 1818.

Thibaudia. Named in honor of *Thiebaut de Berneaud*, Secretary of the Linnæan Society of Paris, and a botanical writer. *Linn. Octandria-Monogynia.* Nat. Ord. *Vacciniaceæ.*

A beautiful genus of evergreen shrubs, inhabiting Peru and New Grenada, a few species being also found in the East Indies. They have thick, leathery leaves, and axillary racemes of very handsome tubular flowers, mostly scarlet, sometimes tipped with green or yellow. But few of the species are under cultivation.

Thimble-berry. See *Rubus occidentalis.*

Thin Grass. See *Agrostis perennis.*

Thistle. See *Cirsium.*

Thorn. See *Cratægus.*

Thorn Apple. See *Datura.*

Thoroughwort. See *Eupatorium perfoliatum.*

Three-leaved Night-shade. See *Trillium.*

Three-seeded Mercury. See *Acalypha.*

Three-thorned Acacia, or **Honey Locust.** See *Gleditschia.*

Thrinax. From *thrinax*, a fan; the shape of the leaves. *Linn. Hexandria-Monogynia.* Nat. Ord. *Palmaceæ.*

A genus of West Indian Palms, commonly called, in Jamaica, Thatch Palms, from their leaves being used for thatching. One of the species, *T. argentea*, the Silver Thatch Palm, furnishes the leaves, which are cut before they expand, that are used in the manufacture of Palm-leaf hats, or chip hats. This species is often met in the green-house in a collection of Palms. It is increased by seeds. Introduced in 1778.

Thuja. Arbor Vitæ. From *thyon*, a sacrifice; the resin of the Eastern variety is used instead of incense at sacrifices. *Linn. Monœcia-Decandria.* Nat. Ord. *Pinaceæ.*

This well-known genus of evergreens includes some of the most beautiful and useful evergreen shrubs we have in cultivation, not only for single plants for the lawn, but for hedges, either high or low, for which they are most admirably adapted. The common Arbor Vitæ, *T. occidentalis*, is the parent of most of the varieties grown for ornamental purposes. It is common from New York to Maine, in moist or swampy lands. In some localities it makes a tree of considerable size, valuable for the timber it yields, known as White Cedar. Of this species there is a beautiful sport, of globular form, with golden green foliage, known as Parson's Arbor Vitæ. It is of slow growth, broad and compact, and suitable for cemeteries, or any situation where a beautiful evergreen is wanted. Hovey's Arbor Vitæ is a seedling from the common Arbor Vitæ. Its dwarf, compact habit of growth makes it a splendid plant for growing in tubs for winter decoration. There are other varieties with golden foliage, which are very beautiful. The Siberian Arbor Vitæ is one of the best for hedges or lawns. It is perfectly hardy, has a deeper color, is more compact, and in most respects is more desirable than the common sort. Where, when, or how this species or variety originated is unknown to the best authority we have on evergreens, Josiah Hoopes, who claims it to be a variety of *T. occidentalis*. That it did not come from

Siberia, as its name would indicate, is certain. There are several species from the Pacific coast, and from China. *Biota orientalis*, known as the Chinese Arbor Vitæ, is peculiar from its flattened branches. Thirty years ago, when *flat* bouquets were in fashion, this was used almost exclusively as a "back" or "frame" for the flowers, and is yet, in some parts of the country, used for that purpose. There are a number of seedling varieties, differing considerably in habit, form, and shades of color of foliage, all desirable, and well adapted for ornamental purposes.

Thunbergia. Named in honor of *Charles P. Thunberg*, a celebrated botanist and traveler. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Acanthaceæ.*

A genus of very handsome climbing plants. Some of the species, such as *T. alata*, *T. alba*, *T. aurantiaca*, and the varieties of the same, may be treated as half-hardy annuals. They usually seed freely; the seed should be sown in March in heat, bringing the young plants forward in the same temperature till May, when they may either be transferred to the borders of the flower garden to be trained against a wall, or suffered to creep over rock-work, or they may be placed in large pots having a trellis attached, where they form very ornamental subjects for the greenhouse through the summer. The remaining species, as they do not produce seed in any quantity, require to be grown in the greenhouse. They should be frequently syringed to keep down attacks of red spider. At the end of the growing season they should be pruned closely back, and kept dormant through the winter. The green-house species, *T. chrysops*, however, does better when allowed to grow on without pruning, nor should it be re-potted more than once a year, or it will not flower. *T. Harrisii*, of recent introduction here, with flowers tubular in form, two inches in length, of a bright porcelain blue, with yellow throat, is one of the best green-house climbers we have. It is a rapid grower, and continues in flower the whole summer. It blooms in profusion from November to May, its rare blue color making it one of the most attractive green-house plants. Propagated by cuttings.

Thyme. See *Thymus.*

Thymus. Thyme. From *thumos*, courage, strength, the smell of Thyme being reviving, or from *thuo*, to perfume; being formerly used for incense in the temples. *Linn. Didynamia-Gymnospermia.* Nat. Ord. *Lamiaceæ.*

The common *Thyme* of our gardens is a low-growing under-shrub, a native of Spain and Italy, and has been known for centuries. The lemon-scented Thyme is a hardy trailing evergreen, and possesses the most agreeable perfume of any of the species. There are probably a hundred acres of Thyme grown in the vicinity of New York, and dried for flavoring purposes. The spreading variety is the kind used, the upright being useless for this purpose. The seed is thickly sown as soon as the ground gets warm in spring, and the plants are transplanted in July, in rows one foot apart, with nine inches between the plants. The crop matures by October of the year it is planted. It is common throughout Europe, and has to some extent become naturalized in this country. The variegated-leaved varieties of this species—the Gold and Silver variegated-leaved varieties—make pretty border plants, and are also used in baskets and rustic designs.

Thyrsacanthus. From *thyrsos*, a thyrse, and *acanthus. Linn. Diandria-Monogynia.* Nat. Ord. *Acanthaceæ.*

A fine genus of hot-house plants, containing a number of shrubs or herbs, natives of tropical America. They have large leaves, and red fascicled or cymose flowers, in a long, terminal raceme. The calyx is divided to the middle into five equal short lobes; the corolla is tubular and incurved, with a five-lobed or two-lipped spreading limb, and the two fertile stamens are usually included, and have parallel anther cells, blunt at the base. The upper portion of the capsule is without seeds, while the lower portion, being swollen, gives it a spathulate form; it contains only four (sometimes two) seeds. *T. rutilans* is one of the finest, and highly prized for its long racemes of carmine-scarlet flowers. They require the same treatment as *Justicia.* First introduced in 1823.

Thysanotus. From *thysanotos*, fringed; the three inner sepals being fringed. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of green-house herbaceous perennials from New South Wales, producing singular, purple, Iris-shaped flowers, on slender scapes about a foot high. They are not much cultivated. Introduced in 1823.

Tick Trefoil. See *Desmodium.*

Tiger Flower. See *Tigridia.*

Tigridia. Tiger Flower. From *tigris*, a tiger, and *eidos*, like; in reference to the spotted flowers. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A small genus of very beautiful Mexican bulbs, introduced in 1796. The flowers are indeed remarkable; and though they are of very short duration, lasting only about half the day, they are produced in such abundance in succession as to make their culture desirable and interesting. One plant will continue flowering for two or three months in succession, and during the whole of that time will make a splendid display in the garden. Of the several species or varieties introduced into the garden there are but two that succeed really well, and they rarely, if ever, fail of producing an abundance of flowers; these are *T. conchiflora*, with yellow flowers, and *T. pavonia*, with bright, dark orange-red flowers. *T. pavonia grandiflora*, a variety of the preceding, has larger flowers of the same color. Each of these is spotted, characteristic of the order. They grow freely with ordinary garden culture, preferring a light, rich, and moist soil, and will not succeed in a very dry situation. These bulbs flower during the rainy season in Mexico, and they consequently require considerable water when under cultivation. The bulbs require to be taken up soon after the first frost, tied up in bunches of convenient size, without cutting off the stems, and hung up in any dry room free from frost, where they can remain until the time for re-planting. A place must be selected where they cannot be reached by mice, which are very destructive to the bulbs.

Tile-root. See *Geissorhiza.*

Tilia. Basswood, Linden. Derivation of name unknown; in Dutch it is called *Linden*, in Anglo-Saxon *Lind*, and in English *Lime Tree. Linn. Polyandria-Monogynia.* Nat. Ord. *Tiliaceæ.*

A genus of tall-growing deciduous trees common throughout this country and Europe. The European Linden, *T. Europæa*, has larger leaves than our native species, and is the one that is usually planted as an ornamental tree. *T. Americana* grows to a great size in this country, and furnishes a large amount of lumber, used chiefly

in cabinet work. It is soft, of a reddish tinge, and unfit for work requiring strength, or where it is exposed to the weather. This is the species so extensively used as a street tree at Washington, D. C., where it luxuriates. *T. heterophylla* has larger leaves than the preceding; they are smooth and bright green above, and silvery white underneath. It does not grow to so great a size, but the lumber is far more valuable, being almost pure white, and works more easily and smoother. The two species are designated as Red and White Basswood. The inner bark of the Linden is popularly known as Bass, and was formerly much used for tying, but is now almost entirely superseded by *Raffia*, which see.

Tillandsia. Long Moss, Black Moss, Gray Moss, and Florida Moss. Named in honor of *Elias Tillands*, Professor of Physic at Abo. *Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

An interesting genus of epiphytal plants, natives of the United States from the Carolinas and southward, the West Indies, and South America. They generally grow upon trees in dense forests. "Some of these plants serve as reservoirs for water, which flows down the channeled leaves; these are dilated at the base, so as to form a bottle-like cavity capable of holding a pint or more. Travelers tap these vegetable pitchers for the sake of the grateful fluid they contain. *T. utriculata*, a native of Jamaica, and many others, have this desirable property of storing up water. Dr. Gardner, in his *Travels in Brazil*, relates that a certain species of *Utricularia* grows only in the water collected in the bottom of the leaves of a large *Tillandsia*. The aquatic plant throws out runners, which direct themselves to the nearest *Tillandsia*, and there form new plants; and in this way no less than six *Tillandsias* may sometimes be seen connected together." Florida Moss is *T. usneoides*, and grows as far north as the Dismal Swamp in Virginia. It is collected in great quantities, steeped in water, or buried in the earth, until the outer surface is rotted off, when it leaves a dark, coarse, tough fiber, not unlike horse-hair, which is used for stuffing cushions, mattresses, and various forms of upholstery. This moss, as gathered, is used to ornament frames or rustic work in drawing-rooms, and for these and other ornamental purposes large quantities of it are sent annually to all our large cities. In moist rooms like a conservatory, it will grow very well when thrown loosely over a frame, or suspended in any other way. It is a singular circumstance that two such widely different-appearing plants as the "Florida Moss" and the delicious Pineapple should belong to the same natural order.

Timothy. Herd's Grass, *Phleum pratense*, which see.

Tipularia. Crane-Fly Orchis. Name from a fancied resemblance of the flowers to insects of the genus *Tipula*. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A low-growing Orchid, rarely met, a native of the Northern States from Massachusetts to Michigan. The flower scape is from twelve to eighteen inches high, and bears numerous small greenish flowers tinged with purple.

Toad Flax. See *Linaria.*

Toad Stools. The common name of various species of Fungi, frequently mistaken for Mushrooms.

Tobacco. See *Nicotiana.*

Todea. In honor of *Henry Julius Tode*, of Mecklenburg, an able and experienced mycologist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of very beautiful Ferns from Africa and New Zealand. They are only occasionally met in choice collections in this country, but are now beginning to receive the attention they deserve. They require special treatment, however, and are rarely found in good condition, unless in places where great care and attention can be given.

Tofieldia. False Asphodel. Named after *Mr. Tofield*, an English botanist of the last century. *Linn. Hexandria-Monogynia.* Nat. Ord. *Melanthaceæ.*

A small genus of native herbaceous perennials. The flowers are small and whitish, borne on slender racemes. The plants are not very ornamental.

Tomato. (*Lycopersicum esculentum.*) The Tomato belongs to the Nat. Ord. *Solanaceæ*, and to the class *Pentandria*, and order *Monogynia*, of the Linnæan arrangement. The genus is composed of a number of species, all natives of South America. The name is derived from *lykos*, a wolf, and *persicon*, a peach; in allusion to the beautiful appearance and deceitful value of the fruit. This application at the present day, when we consider the importance of the Tomato to the household, seems to be rather inappropriate. Its first introduction into England was in 1596, and it was for many years grown only as an ornamental plant, or for its medicinal properties. It was then known by the common name of Love Apple. The "Virtues" of the Tomato were described as follows by Parkinson in 1629: 'In hot countries, where they naturally growe, they are much eaten of the people, to coole and quench the heate and thirst of their hot stomaches. The Apples are also boyled, or infused in oyle in the sunne." The Tomato was first used as a vegetable in Italy, and soon after in France and England; it is, however, but comparatively little grown in the open air in England, as their summers are not warm enough to ripen the fruit to anything like perfection; but it is a favorite food there grown under glass. The Tomato has not been in general use in this country for more than fifty years, and most of our choice varieties are of recent introduction. New varieties, obtained by selection, are offered annually, each one claiming to be superior in earliness and productiveness; but there has really been but little improvement in the past ten years, and we are almost inclined to believe that we have reached the point where "improvement" must stop. Tomatoes are now extensively grown for canning, and tens of thousands of acres are used in growing them for that purpose.

Tonquin Bean. See *Dipterix odorata.*

Toothache Grass. See *Otenium Americanum.*

Toothache Tree. See *Zanthoxylum.*

Toothwort, Pepper-root. See *Dentaria.*

Torenia. In honor of *Olof Toren*, a Swedish clergyman, who discovered *T. Asiatica* and other plants in China. *Linn. Didynamia-Angiospermia.* Nat. Ord. *Scrophulariaceæ.*

A small genus of very beautiful trailing annuals and perennials, natives of China and the East Indies. For the green-house or conservatory these plants, with their numerous dark purple flowers, are a great attraction. They also succeed well in a moist, shady border, but will not endure our hot, sunny weather. They are all readily increased by cuttings or from seed. *T. Fournieri*, of recent introduction, is an upright-growing plant, of branching and graceful habit, with a profusion of beautiful violet flowers. *T. Baillonia*, introduced in 1878, is an

entirely distinct species, having deep yellow and maroon-colored flowers. All make excellent basket or vase plants. They must be kept at a temperature in winter of not less than 60° at night, and they are at all times impatient of being chilled. Propagated by seeds or cuttings.

Touch-me-not, Balsam, Jewel Weed, is *Impatiens noli-me-tangere*, a marshy plant, common from New York southward. See *Impatiens*.

Torreya. Named in honor of *Dr. John Torrey*, one of the most distinguished of American botanists. *Linn. Diœcia-Monadelphia.* Nat. Ord. *Taxaceæ*.

This genus is a branch of the *Yew* family, and is represented in this country by *T. taxifolia*, a native of Florida, a perfectly hardy and beautiful species, and one of the most attractive and desirable evergreens. *T. Californica* is known as the California Nutmeg.

Tournefortia. In memory of *Joseph Pitton de Tournefort*, the distinguished author of an arrangement of plants under the title of "*Institutiones Rei Herbariæ*," and other botanical works, from 1694 to 1717; his first work, the "*Institutiones*," laid the foundation of the arrangement now followed, called the Jussieuan or Natural System. *Linn. Pentandria-Monogynia.* Nat. Ord. *Ehretiaceæ*.

A genus of evergreen twining shrubs inhabiting the tropics of both hemispheres, and extending as far north as the Canaries and Central Russia. *T. heliotropioides*, from Buenos Ayres, is a very beautiful species, and is occasionally grown in the green-house for its pale lilac flowers, which are arranged similar to those of the Heliotrope. Propagated by cuttings.

Tower Mustard. See *Arabis perfoliata*.

Toxicodendron. See *Rhus toxicodendron*.

Trachelium. Throatwort. From *trachelos*, the neck; in allusion to the efficacy of the plant in diseases of the throat; hence the common name, *Throatwort. Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ*.

Very pretty half-hardy biennial plants, with showy bell-shaped blue flowers, varying from very dark blue to nearly white. They are natives of the Mediterranean coast. Seeds should be sown in spring for flowering the next season, and the plants protected by a frame in winter.

Tradescantia. Spiderwort. Named after *John Tradescant*, gardener to Charles I. *Linn. Hexandria-Monogynia.* Nat. Ord. *Commelynaceæ*.

An extensive genus of green-house and hardy herbaceous perennials. Of the tender sorts, *T. zebrina*, a native of South America, and its varieties, are grown largely for basket plants, and also as a house plant, thriving well in a shady, moist place. *T. Buchanani* resembles the preceding, but is a stronger grower *T. Virginica*, and its varieties, are hardy herbaceous plants, interesting for the border, on account of the continual succession of their blue or white flowers, which are produced every morning from May to September. They have long, grass-like foliage, and the flowers are borne on stems from one to two feet high in terminal clusters. *T. repens vittata*, *T. aquatica*, and their varieties, are among the best known of our house plants, where they are known as "Wandering Jew." They grow freely in water, making a drooping fringe of from two to four feet, and are used in a variety of forms in the window culture of plants. The green-house species are propagated readily by cuttings, and the hardy species by division in early spring. First introduced in 1629.

Tragopogon. Goat's Beard, Vegetable Oyster. From *tragos*, a goat, and *pogon*, a beard; in allusion to the long, silky beards of the seeds. *Linn. Syngenesia-Æqualis.* Nat. Ord. *Asteraceæ*.

Ornamental biennial plants, natives of Europe, which only require to receive the usual treatment of similar plants. Of the British species, the most remarkable are *T. pratensis*, the popular name of which is Go-to-bed-at-noon, from the flowers closing in the middle of the day, and which has large yellow flowers, and a very curious feathery head of seeds; and *T. porrifolius*, the common Salsify, or Oyster Plant, which has purple flowers, and the roots of which are extensively grown, and highly valued as a vegetable. It is a hardy biennial, native of Great Britain and most other parts of Europe. The seeds should be sown early in deep, rich soil. Culture the same as for Carrots or Parsnips.

Trailing Arbutus. See *Epigæa repens*.

Trapa. Water Caltraps, Water Chestnut. From *calcitrapa*, an ancient instrument in warfare with four spikes; fruit of some species armed with four spikes or horns. *Linn. Tetrandria-Monogynia.* Nat. Ord. *Haloragaceæ*.

A genus of aquatic plants, natives of Europe, India, China, and Japan. They are remarkable for the shape of their seeds, some of which resemble a bullock's head and horns. The seeds of all these plants abound in starch, and are much used as food. Those of *T. natans*, called Jesuit's Nuts at Venice, are ground into flour and made into bread in some parts of Southern Europe. In Kashmir, a large portion of the inhabitants subsist on these nuts for several months in the year.

Traveler's Joy. See *Clematis vitalba*.

Traveler's Tree. See *Urania*.

Treacle Mustard. See *Erysimum*.

Tread-Softly. Spurge Nettle. See *Jatropha urens*.

Tree of Heaven. See *Ailantus*.

Trefoil. See *Trifolium*.

Tremandra. From *tremo*, to tremble, and *andros*, a male; the anthers vibrate with the least movement of the air. *Linn. Decandria-Monogynia.* Nat. Ord. *Tremandraceæ*.

This genus consists of but two known species, both small green-house shrubs, natives of New Holland. They are delicate shrubs, covered with stellate down, and have axillary purple flowers. They are but rarely cultivated, except *T. verticillata*, which is a very beautiful plant, and has long been a favorite in choice collections. Propagated by cuttings. Introduced in 1845. See *Tetratheca*.

Trichinium. From *trichinos*, hairy; flowers covered with knotted hairs. *Linn. Pentandria-Monogynia.* Nat. Ord. *Amarantaceæ*.

A genus of annuals and herbaceous perennials from Australia. The flowers of some of the species are extremely ornamental. Their yellow, crimson, white, or pink flowers, are produced in terminal heads or spikes. The perennials require to be grown in the green-house. The annuals should be started in seed boxes in February, as our seasons are too short for their development if the seed is sown in the border.

Trichocentron. From *thrix*, a hair, and *centron*, a spur or center; reference not clear. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ*.

A considerable genus of epiphytal Orchids from South and Central America. Most of the species are not considered worth growing. *T. atropurpureum*, from the Rio Negro, is an ex-

ceedingly beautiful plant. Petals maroon, brown inside, and yellowish green outside; lip large, white, with two bright purple spots. One or two other species have very beautiful flowers. They should be grown on blocks or cork, or in small baskets in a moderate temperature. They bloom freely, and require but little care. Introduced in 1835.

Tricholæna. From *thrix*, a hair, and *chlaina*, a cassock. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

A small genus of very pretty grasses, generally included in the genus *Panicum*. A few are found in collections of ornamental grasses in the green-house.

Trichomanes. From *thrix*, a hair, and *manos*, soft; the shining stems appear like soft hair. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

An extensive, varied, and beautiful genus of Ferns, found abundantly in the moist, shady woods of the tropics in both the Old and New Worlds. *T. radicans*, a beautiful species, is found on the coast of Ireland. Many of the species are cultivated for the beauty of their fronds, which have an almost transparent appearance. Propagated by division or from spores.

Trichonema. From *thrix*, a hair, and *nema*, a filament; stamens clothed with minute hairs. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A genus of beautiful little crocus-like, bulbous plants, with red, yellow, purple, and white flowers, borne singly on slender scapes. They are natives of Spain, Italy, and the Cape of Good Hope. Like most bulbs from those localities, they require to be grown in the green-house. Propagated by offsets. Introduced in 1818.

Trichopilia. From *thrix*, a hair, and *pilion*, a cap; in allusion to the anther being concealed below a cap surmounted by tufts of hair. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of very beautiful epiphytal Orchids, natives of Central America and the West Indies. The flowers are white, yellow, pale pink, or greenish white. *T. suavis*, a species from Central America, is one of the finest of the genus. Its flowers are very large, pale nankeen color, with white lip very clearly marked with clear lilac. It is very beautiful and fragrant. All the species may be grown in a cool house, and succeed best in pots.

Trichosanthes. Snake Cucumber. From *thrix*, a hair, and *anthos*, a flower; the flowers are ciliated. *Linn. Monœcia-Decandria.* Nat. Ord. *Cucurbitaceæ.*

A genus of climbing annuals from China and the East Indies, commonly known as *Snake Cucumbers*. *T. colubrina* is a very curious plant with white flowers, every petal of which appears surrounded with long, knotted fringe. The leaves and tendrils resemble those of the common Cucumber; but the fruit is curiously striped, and is so long and narrow as to resemble a snake. Specimens have, indeed, been grown more than six feet long, and not thicker than the body of a common snake. The plant is an annual, a native of China, and it should be grown like a common Cucumber or Melon. It is of no use, and only worth cultivating as an object of curiosity.

Tricyrtis. From *treis*, three, and *kyrtos*, convex; alluding to the three outer sepals having bags at their bases. *Linn. Hexandria-Trigynia.* Nat. Ord. *Melanthaceæ.*

T. hirta, the best known species, is a very beautiful hardy herbaceous plant, found in China and Japan. The flowers are axillary, in panicles about six inches long, resembling, in their peculiar form and markings, some of the more singular Orchids. This plant is very desirable for the open border. It produces its flowers in October and November, at which time the plant may be removed to the sitting room, and they will remain several weeks in flower, after which they may again be returned to the border. It is much used by the bouquet makers in the fall months. Propagated by division. Introduced in 1855.

Trifolium. Clover, Trefoil. From *treis*, three, and *folium*, a leaf; three-leaved. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

Of this very extensive genus there are several species under cultivation as forage plants. They include *T. pratense*, the common Red Clover, a native of Great Britain; *T. reflexum*, Buffalo Clover, indigenous in New York and westward; *T. repens*, White Clover, introduced from Europe, but indigenous in the Northern States; and *T. hybridum*, or Alsike Clover, a hybrid variety introduced from near Stockholm, Sweden. Besides these there are a number of other species that have been considerably cultivated, but those named are almost wholly preferred for pasture and hay. Those who are accustomed to consider the *Trefoil* as only the common Clover of the meadows, will probably be surprised to learn that there are nearly a hundred and fifty species, all more or less ornamental. Some of these are perennials and some annuals; and the color of their flowers varies from dark crimson, and sometimes scarlet, to purple on the one hand, and to white, cream-color, and pale yellow on the other. Some of our dealers in hardy herbaceous plants have catalogued some of the more showy species, and highly recommend them for border plants.

Trillium. From *trilix*, triple; the parts of the flowers in threes: the calyx has three sepals, the corolla three petals, the pistil three styles, and the stem three leaves. *Linn. Hexandria-Trigynia.* Nat. Ord. *Trilliaceæ.*

A singular and beautiful genus of hardy herbaceous plants, belonging exclusively to the United States and the Canadas. The stems have three leaves, and the flowers three petals. The flowers are large, white, purple, or pink, produced from April to June. They are common in moist woods, but are improved with ordinary garden cultivation. They are tuberous rooted, and do not divide readily, but may be increased rapidly from seed, which should be sown as soon as ripe in a frame, where it may be shaded, or sown in the open ground and slightly covered with leaves.

Triosteum. Feverwort, Horse Gentian. From *treis*, three, and *osteon*, a bone; three bony seeds. *Linn. Pentandria-Monogynia.* Nat. Ord. *Caprifoliaceæ.*

A genus of coarse-growing, hardy herbaceous plants, common in the Middle and Southern States. The roots of one of the species were esteemed by the Indians as a medicine. They are not now considered either ornamental or useful.

Triteleia. From *treis*, three, and *teleios*, complete; parts of the flower and fruit in threes. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small family of very pretty bulbs, natives of California and South America. They are quite hardy. The flowers are yellow, blue, and white.

T. uniflora has very pretty white flowers with a greenish-gray stripe on each petal. They are borne on slender scapes. The plants continue in flower a long time, and in the open border appear early in spring. *T. laxa*, the Californian species, has glaucous leaves, and a many-flowered umbel of deep blue flowers. All the species are desirable, and suited either to greenhouse culture or the open border. Propagated by offsets. First introduced in 1832.

Triticum. Wheat. From *tritum*, rubbed; in allusion to its being originally rubbed down to make it eatable. *Linn. Triandria-Digynia.* Nat. Ord. *Graminaceæ.*

This genus includes annual and perennial grasses, some of which are the most useful and important plants in cultivation, while others are the most troublesome pests the farmer and gardener have to contend against. *T. vulgare*, Wheat, has more intrinsic value than any other plant grown. The native country of the Wheat is unknown. In its present form it is older than history. There is no record of its having been found growing *wild*. Those who have given the most time and study to ascertain its origin, *presume* it is a native of Southern Europe and Western Asia, a development of the genus *Ægilops*. This is, however, mere speculation. Many varieties of Wheat have been produced by culture and cross-breeding, without, however, materially changing the grain. *T. repens* is the pest commonly known as Couch or Quick Grass, a perennial that is most tenacious of life, and which, when once established, will destroy all other crops, and can be exterminated only with the greatest exertion and difficulty.

Tritoma. From *treis*, three, and *temno*, to cut; in allusion to the three sharp edges at the ends of the leaves. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

The *Tritoma*, or Red-Hot Poker plant, and also Flame Flower, as it is popularly known, is a very beautiful half-hardy herbaceous plant, native of the South of Africa. The genus consists of about half a dozen species, the finest being *T. uvaria grandiflora*, a plant admirably adapted for single clumps on the lawn, or among shrubbery, where its tall spikes of orange-red flowers make an effective display from August until December. This plant will usually live through the winter in the latitude of New York without protection, if planted in a dry soil; but it will well repay the slight protection required (by three or four inches of dry leaves around the root) to secure it against all danger from frost. The flowers are not at all injured by a few degrees of frost, and it is not an uncommon sight to see its tall spikes in perfect flower in December. They are readily increased by seed or by division of the roots, which should be done in early spring. This genus was first introduced in 1707, though it has not been long common in our gardens here.

Tritonia. From *triton*, a weather-cock; in allusion to the variable direction of the stamens in the various species. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A very pretty genus of low-growing bulbous plants from the Cape of Good Hope. The flowers are tubular, borne on slender scapes, the colors being orange, white, yellow, and blue. They are half-hardy, and should have the protection of a frame during winter, and may be allowed to remain undisturbed for a number of years. *T. aurea*, bearing beautiful orange-colored flowers, is one of the best, and much esteemed. This is now *Crocosmia aurea*. They are increased by offsets. Introduced in 1815.

Trollius. Globe Flower. From *trol*, the German for round; globular flowers. *Linn. Polyandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

A genus of hardy, yellow-flowered, herbaceous plants. *T. laxus*, the only native species, has flowers twice the size of the Buttercup, of a pale greenish-yellow color. *T. Europæus*, a native of Great Britain, has much larger flowers, and of a brighter color, and is common in old cottage gardens. Propagated by seeds or division.

Tropæolum. Nasturtium. From *tropaion*, a trophy; the leaves resemble a buckler, and the flowers an empty helmet. *Linn. Octandria-Monogynia.* Nat. Ord. *Tropæolaceæ.*

An extensive genus of hardy annuals and green-house tuberous and herbaceous perennials, all natives of tropical America. The tuberous-rooted varieties are confined to Peru. The well-known annual plants called the Nasturtium are common in every garden, and only require sowing with the other hardy annuals in spring. There were formerly only two kinds of the annual Tropæolums, *T. major* and *T. minor*, but since 1830 numerous varieties have been raised. One, with very dark flowers, is called *T. minor atrosanguineum*, and another, with dark stripes, is *T. minor venustum*. The young shoots of these plants are succulent, and taste like the common land Cress, the botanical name of which is Nasturtium, and hence they have received their popular name. Besides the hardy annual kinds, there are several tender species, most of which are kept in the greenhouse. The best known of these is *Tropæolum tricolorum*, with flowers marked red, black, and yellow, which has tuberous roots, and such very weak and slender stems, that it is found necessary always to train them over a wire frame, as they are quite unable to support themselves. In Paxton's "Magazine of Botany" it is stated that the tuber of the root should not be buried, but only placed on the surface of the soil, so that the fibrous roots may penetrate it. This, it is said, will enlarge the size of the tuber in "a truly astonishing manner;" and though the plants will not appear healthy the first season, they will afterward become extremely vigorous. It is also recommended to use double pots for these plants, and fill up the interstices with river sand, which should always be kept moist. Substantially the same plan has been followedin this country for many years, and found to succeed well. *T. brachyceras* may be treated in the same manner, and it would probably succeed with *T. tuberosum*, a species which it is very difficult to throw into flower under ordinary treatment, but which grows best in the open ground, in rich soil, and with plenty of air and light. *T. peregrinum*, the Canary Bird Flower, was formerly considered a green-house plant, but it is now found much better to treat it as a half-hardy annual, raising the seeds on a hot-bed, and planting them out in May near some trellis-work or other support, which the plant will soon cover in the most graceful manner, producing hundreds of its elegant, fringe-like, pale-yellow flowers. Propagated from cuttings and by seeds. Introduced in 1596.

Truffle. (See *Tuber.*) A species of Fungus found in various parts of Europe, and much esteemed as a rare dish. It grows under the ground, and was formerly sought after with dogs trained for

the purpose, but is now usually discovered by a particular species of fly hovering over the place of its growth. It is said that the Truffle has been found in the State of New York.

Tuber. Truffle. An ancient Roman name. *Linn. Cryptogamia Fungi-Gasteromycetes.* Nat. Ord. *Helvellaceæ.*

T. cibarium, a native of Europe, is the well-known Truffle, which see.

Trumpet Creeper, Trumpet Honeysuckle. See *Tecoma.*

Trumpet Flower. See *Tecoma.*

Trumpet Lily. See *Lilium longiflorum.*

Trumpet Weed. See *Eupatorium purpureum.*

Tuberose. See *Polianthes tuberosa.*

Tulbaghia. In honor of *Tulbagh*, a Dutch governor of the Cape of Good Hope. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of evergreen perennials, natives of the Cape of Good Hope. *T. violacea* is a very beautiful plant. The flowers are violet-purple, produced in many-flowered umbels, somewhat like those of the *Agapanthus*, to which the genus is allied. Propagated by division.

Tulip. See *Tulipa.*

Tulipa. The Tulip. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

The Tulip derives its name from the Persian word *Thoulyban*, a turban; an Eastern headdress, sometimes made in the form of a well-shaped Tulip. Tulips are divided into several classes, and of these we shall speak in the order of their flowering. The single and double varieties of the *Duc Van Thol*, of which the type is *Tulipa suaveolens*, (from the Latin *suavis*, sweet,) are the earliest and most suitable for pot culture or forcing. If, in autumn, they are planted singly, in small pots of light, rich soil, they will flower extremely well in an ordinary room, and contrast finely with Hyacinths in glasses. They should be frequently exposed to fresh air, and will flower in water like the Hyacinth, but with less certainty and less luxuriance; hence they are better grown in pots of soil. The *Duc Van Thol* was introduced into English gardens from the South of Europe in 1603. The Single Early Tulip, (*Tulipa Gesneriana*,) the parent of our ordinary garden varieties, is a native of Asia Minor, the Caucasus, Calabria, and Central Italy. Conrad Gesner, a Swiss naturalist, in whose honor it was named, first made it known by a description and drawing in April, 1559. He obtained his specimen in a garden at Augsburg, where it was grown from seed brought from Constantinople. It was first flowered in England by Mr. James Garret, an apothecary, in 1577. Of this class of Early Single Tulips there is almost an endless variety. They have received, for more than two hundred years, all the care and attention that could possibly be bestowed on a plant, not only by the Dutch florists, but by every skilled gardener throughout the Old World. Notwithstanding the "mania" has safely passed over, one of the Haarlem florists this season (1880) offers eighteen hundred varieties. To select from a list so large with a view of pleasing, or of securing the most desirable, would be to play a game of chance. Every color and shade, except black, is represented, either alone or mixed, striped, or shaded; in fact, every possible combination of color may be obtained. Double Tulips are almost as common as the single, many of them very showy and desirable. But, like all others who have made a specialty of the Tulip, we could never admire the double

as much as the single varieties. Late flowering or Show Tulips, of which so much has been said and written, have been grown from seed by millions, the result of which has been the acquisition of many superb varieties. There is a singularity in Tulips which belongs to no other flower. The seedlings generally, when they first bloom, produce flowers without any stripes or markings, but with a yellow base, the upright portion of the petals being self-colored, brown, red, purple, scarlet, or rose. In this state, when they have been grown for years without variation, they are called Breeders or Mother Tulips. These are planted every year until they break into stripes, when, if the markings are fine, or different from any known, they are named. It is often so many years before they break, and the multiplication in the breeder state is so rapid, that the border soon becomes filled with this self-colored variety. Each person who has broken one claims and has a perfect right to give it a name; but much confusion naturally exists, because of the fact that different names have been given to those that have broken almost exactly alike. In a bed of a hundred seedlings, it is not probable that any two will be very nearly alike in their markings. This uncertainty adds greatly to the charm of Tulip cultivation. The hope of something new in the markings and penciling is a sufficient stimulant for the enthusiast to persevere in his labor of love until he has found *one* worthy of a name. One singular feature in the Tulip is, that after it breaks it ever remains the same. Show Tulips are divided into three classes: 1. *Byblæmens*, such as have a white ground, variegated with purple, the edges well feathered, the leaflets erect, and the whole forming a perfect cup. 2. *Bizarres*, having a yellow ground, variegated with scarlet, purple, rose, or violet. 3. *Roses*, with white ground, variegated with rose-color, scarlet, or crimson. The properties of a good Tulip, as a florist's flower, are: 1. The cup should form, when quite expanded, from half to a third of a round ball. To do this, the petals must be six in number, broad at the ends, smooth at the edges, and the divisions between the petals must scarcely show an indenture. 2. The three inner petals should set closely to the three outer ones, and the whole should be broad enough to allow of the fullest expansion without quartering, as it is called, or exhibiting any vacancy between the petals. 3. The petals should be thick, smooth, and stiff, and keep their form well. 4. The ground should be clear and distinct, whether white or yellow. The least stain, even at the lower end of the petal, renders a Tulip of less value. 5. Whatever be the disposition of colors or marks upon a Tulip, all the six petals should be marked alike, and be, therefore, perfectly uniform. 6. The feathered flowers should have an even, close feathering all round; and whether narrow or wide, light or heavy, should reach far enough round the petals to form, when expanded, an unbroken edging. 7. If the flower have any marking besides the feathering at the edge, it should be a bold mark down the center, but not reaching the bottom of the cup. The mark must be similar in all the six petals. 8. Flowers not feathered, and with the flame only, must have no marks on the edges of the flowers. None of the colors must break through to the edge. The color may be disposed in any form, so that it be perfectly uniform in all the petals, and does

not go too near the bottom. 9. The color, whatever it may be, must be dense and decided. Whether it be delicate and light, or bright, or dark, it must be distinct in its outline, and not shaded, or flushed, or broken. 10. The height should be eighteen to thirty-six inches; the former is right for the outside row in a bed, and the latter is right for the highest row. 11. The purity of the white and the brightness of the yellow should be permanent; that is to say, should stand until the petals actually fall. Where Parrot Tulips originated we have not learned. They are ignored by those florists who claim the right to say what is and what is not beautiful. Not being bound to observe the "laws" that regulate the form, shape, and "perfect markings," we prize this class very highly, on account of their singularly picturesque appearance. The flowers are very large, and the colors exceedingly brilliant. They are unequaled for groups in mixed borders, or conspicuous places in front of shrubs. The varieties of this class are limited, but they are, nevertheless, particularly beautiful.

Culture of the Tulip.—The best soil for the culture of the Tulip is a rich, rather light, well-drained loam. A bed of sufficient size for planting the bulbs should be dug at least twelve inches deep. The Tulips should then be planted six inches apart each way; pressed deep enough to keep them in their places, and covered with mould to the depth of three inches on the sides of the bed, and five inches in the center. This precaution is necessary, that water may not stand on the bed during the winter. When the bed is planted and covered, it may be left to the weather until the Tulips come up, or about the first of March. A slight protection of litter is then required, as the frost has a tendency to check the bloom. Our climate is so variable—cold at night and hot at mid-day—that it will well repay the cost to cover at night and remove in the morning. Leaving them covered during the day has a tendency to draw them up and otherwise weaken them. When the flowers appear, if they are protected from the sun by a light canvas, the period of bloom may be kept up for three or four weeks. The colors are generally better if not shaded at all, but in that case the bloom would be soon over. Sometimes a single day's hot sun would completely spoil them. When the flowers begin to fade, they should be cut away and removed from the bed. As soon as the stems of the Tulip turn yellow, and the leaves begin to dry, they may be taken up and put in a cool, dry place. When dry, thoroughly clean off the old skin and dirt, and put in paper bags, ready for planting out again in October. The Tulip is also now extensively forced for cut flowers during the winter and spring months. The method of culture is identical with that of the Roman Hyacinth and Paper Narcissus. The only important point is to grow only the kinds known as *Single Early*, such as "Snow Flake," "Maréchal Neil," "Rose Queen," etc.

Tulip Tree. See *Liriodendron.*

Turmeric. See *Curcuma.*

Tunica. From *tunica*, a coat; referring to the calyx. *Linn. Decandria-Trigynia.* Nat. Ord. *Caryophyllaceæ.*

Hardy herbaceous perennials, natives of Southern Europe and Central Asia, and allied to Dianthus. A few of the species have showy flowers in spring. They are increased by division or from seed.

Tupelo. See *Nyssa.*

Tupa. *Tupa* is the name of *T. Fuillei* in Chili. *Linn. Pentandria-Monogynia.* Nat. Ord. *Lobeliaceæ.*

This is a genus of pretty plants, chiefly natives of Chili and Peru. They are worth cultivating on account of the beauty and singularity of their flowers. They are treated and propagated like the *Lobelia.*

Turkey's Beard. See *Xerophyllum.*

Turkish Rhubarb. See *Rhubarb.*

Turnera. Dedicated by Linnæus to the memory of *William Turner*, Prebendary of York, Canon of Windsor, etc., and author of "A New Herbal," 1551. *Linn. Pentandria-Trigynia.* Nat. Ord. *Turneraceæ.*

A genus of very handsome plants when in flower. Some are annuals, and others greenhouse shrubs and herbaceous plants, with yellow flowers, some of which resemble those of the Thunbergia. They should be grown in a light, rich soil. They are propagated by cuttings or by seeds. Introduced from South America in 1774.

Turnip. (See *Brassica.*) The field and garden Turnip is supposed to have originated by long cultivation of the wild *Brassica rapa*, a native of Great Britain and other parts of Europe. At what period it was first brought into notice in its native countries, or how its improvement from its native wild and useless state was brought about, is entirely unknown. It was in use as a vegetable before the Christian era, but we have no account of its being cultivated to any extent as a field crop previous to 1300. It does not seem that there was any rapid development in its improvement worthy of mention by the early writers previous to 1650, but from that period its increase in cultivation was rapid, and many new sorts are mentioned. At the present day, every country adapted to its growth boasts of the varieties it has produced. The Swedish Turnip, or Ruta Baga, one of the best known, originated from *B. campestris;* its varieties are numerous, and generally cultivated. The French Turnip is considered sweeter and freer from any acrid properties than most others, and is highly prized for the table. Several varieties are designated as American, and the Purple and White Strap-leafed Turnips justly so, but where or by whom they originated, or the parentage, we are without knowledge. We only know that they were long grown here previous to their being known in Europe, and that they have always been regarded as American varieties there. A variety of recent introduction, known as the White Egg Turnip, is one of the best for the table. The Turnip is used both as a spring and fall crop. For spring, sow as early as the ground is dry enough, and for fall, in the latitude of New York, sow Ruta Bagas in July, and other varieties during the latter part of August and in September, according to the kind. Seeds may be sown as the ground becomes vacant. In every case, when the soil is dry, firm the seeds well in the soil by the feet or by rolling.

Turræa. Named in honor of *George Turra*, once Professor of Botany at Padua and author of several botanical works. *Linn. Monadelphia-Hexandria.* Nat. Ord. *Meliaceæ.*

A genus of tropical shrubs and large trees confined to the old world. Some of the species have edible fruit, and a few are grown for the beauty of their flowers.

Turpentine. See *Pinus.*

Turtle-Head. One of the popular names for *Chelone*, which see.

Tussilago. Colt's Foot. From *tussis*, a cough; for curing which the flowers have been employed. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

Hardy and half-hardy perennials, natives of Central Europe. One of the species, *T. Farfara*, is common in wet places in the Middle and New England States, having become thoroughly naturalized. They all grow readily in the garden, and some of them are quite ornamental. Propagated by division of the roots, which are inclined to increase rapidly.

Twayblade. See *Listera.*

Twig Rush. The popular name of the common bog or marsh plant, *Cladium mariscoides.*

Twin Flower. A name applied to *Linnæa borealis*, which see.

Twin Leaf. The local name of the genus *Jeffersonia*, which see. The plant is also sometimes called *Rheumatism Root.*

Tydæa. Derivation not given. *Linn. Didynamia-Digynia.* Nat. Ord. *Gesneraceæ.*

A genus of beautiful herbaceous plants, natives of the mountains of New Grenada. There are at present only four described species, which are better known under their old name of *Achimenes*, the best known being *T. picta.* "They are erect, robust herbs, with fine blotched leaves, and axillary, bright-colored flowers. The calyx is connate with the ovary, the corolla almost funnel-shaped, and five-lobed; the stamens are included, the ovary surrounded by five glands, the stigma five-cleft, and the fruit a capsule." The *Gesneraceæ* have been much cut up and divided of late years, so that one hardly knows where to look for the plant he wants to find. See *Achimenes* and *Gesnera.*

Typha. Cat-Tail Flag. From *typhos*, a marsh; referring to the habitat of the species. *Linn. Monœcia-Triandria.* Nat. Ord. *Typhaceæ.*

T. latifolia, the common Cat-Tail Flag of our marshes, a native of Europe and the East, has become naturalized in almost all parts of the United States. It is also common in Europe. A species with narrow leaves is more rare. The pollen of *Typha* is inflammable, like that of *Lycopodium*, and is used as a substitute for it. The "Cat-Tail," in the minds of most boys, is closely associated with the "Fourth of July," being largely used by them for "setting off" their fireworks and crackers.

U.

Ulex. Furze. Said to be taken from the Celtic *ac*, a point; in allusion to its prickly branches. *Linn. Monadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A genus of very beautiful evergreen shrubs, with yellow flowers, both double and single, indigenous to Great Britain and the South of Europe. They are highly esteemed for hedge plants, and the young tops are cut and fed to cattle and horses; but their value as a food plant is considerably questioned. None of the species thrives in this country, being too tender for our Northern States, and too impatient of our tropical summers in the South.

Ulmus. Elm. Supposed to be from the Saxon word *elm* or *ulm*, a name which is applied, with very slight alterations, to the trees of this genus in all the dialects of the Celtic tongue. *Linn. Pentandria-Digynia.* Nat. Ord. *Ulmaceæ.*

This genus takes the first rank in the great army of American trees. When asked, "What is the handsomest tree in America?" we unhesitatingly say, "*U. Americana*, the American Weeping or White Elm." Of the several species that make up this genus, none in any respect compares with this. *U. fulva* is the common Red or Slippery Elm. *U. racemosa* is the Corky White Elm. *U. alata* is the Winged Elm or Whahoo of the South and West. The celebrated English Elm is *U. campestris.* All the species are propagated from seeds.

Umbilicus. From *umbilicus*, the navel; in allusion to the concave leaves of some of the species. *Linn. Decandria-Tetragynia.* Nat. Ord. *Crassulaceæ.*

A genus of interesting plants, natives of Southern Europe, the Levant, and tropical Africa, and now usually placed in *Cotyledon*, which see. In some of the species the radical leaves are rosulate, or disposed like the petals in the flower of a double Rose; others have them alternate on the stalk; in all they are fleshy. The flowers, which are either white or yellow, grow in branched or simple racemes. They grow naturally in dry, stony places, and are used in rock-work, and lately have come into use in England for 'carpet" work and edging. They grow well in pots, and require the same treatment as *Echeverias* and *Sempervivums.* Introduced in 1732.

Umbrella China Tree. *Melia Azedarach. Linn. Didynamia-Decagynia.* Nat. Ord. *Meliaceæ.*

A small genus of tropical trees and shrubs, with alternate pinnate or bipinnate leaves, and flowers borne in panicles. *M. Azedarach*, commonly known as the Pride of India, False Sycamore, Holy Tree, Arbre à Chapelet, Bead Tree, Hill Margosa, and in our Southern States also as Umbrella China Tree and China Berry, is, says Dr. Masters, widely diffused over the globe, having been carried to America, Africa, and different parts of Southern Europe. It is from thirty to fifty feet high, with bipinnate leaves, and large bunches of fragrant, lilac-colored flowers, which are succeeded by a fruit about the size of a Cherry, with an external pulp and a hard nut within. In Southern France and Spain the tree thrives well in the open air, as it does in our Southern States. The Arabic name, Azedarach, implies a poisonous plant, and the fruit is generally considered so. The root is bitter and nauseous, and is used as an anthelmintic. The tree is supposed to possess febrifugal properties, and a decoction of the leaves is used as a remedy for hysterics. From a recent number of the American Agriculturist we make the following extract: "The tree is not hardy north of Virginia, but southward it is a common street tree, and frequent around country places. The ease with which it may be transplanted and its rapid growth are somewhat off-

set by the readiness with which its branches are broken by high winds. Its wood makes excellent fuel, is durable, and is used for furniture. There has been introduced from Texas, within a few years, a marked variety called the Umbrella China Tree. Several years ago we saw a small specimen of this in the extensive collection of P. J. Berckmans, near Augusta, Ga., which promised to be valuable, and now we have a photograph of a tree in Abbeville, Ala., taken by J. C. Mangold, to show the remarkably compact habit and umbrella-like form. Mr. J. A. Clendinen sends an account of the tree, from which we learn that the foliage is so dense that it will turn almost any rainfall. It does not fruit so abundantly as the ordinary form of the tree, but, what is quite remarkable, the variety is reproduced from the seed. This variety of the favorite China Tree will commend itself to our readers in the Southern States, as it has naturally the compact habit that is sometimes imperfectly produced in the ordinary form of the tree by severe cutting. China Berries, as the fruit of the tree is usually called, are eaten by sheep and goats, which in winter require but little other food; cows are fond of them, but they impart an unpleasant taste to the milk. The hard stone is sometimes bored and strung to make 'rosaries' and necklaces, hence the tree is known in some countries as the Bead Tree."

Umbrella Grass. The common name of *Fuirena squarrosa*, which see. It is common in sandy wet places from Massachusetts southward.

Umbrella Palm. See *Kentea.*

Umbrella Tree. See *Magnolia umbrella.*

Unicorn Plant. See *Martynia.*

Upas Tree. See *Antiaris.*

Urania. Traveler's Tree. From *ouranios*, sublime; in allusion to the stateliness of the tree. *Linn. Hexandria-Monogynia.* Nat. Ord. *Musaceæ.*

U. speciosa, the only known representative of this genus, was formerly called *Ravenata Madagascariensis.* It is a magnificent plant, having a palm-like appearance, and is called in Madagascar the Traveler's Tree, because the leaves, when cut, yield an abundant and refreshing juice, with which travelers allay their thirst. The leaves are of gigantic size, somewhat like those of *Musa ensete*, but arranged in two rows on opposite sides of the stems. Young plants are obtained by suckers or from seed.

Urceolina. From *urceolus*, a small cup or pitcher; in allusion to the smallness of the cup, or nectary, inside the flower. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A small genus of handsome summer-blooming Peruvian bulbs. The flowers are yellow, red, and green. They grow freely in the open border, and require a long season of rest. They may be kept during winter like the Tigridias, and planted out in the border after all danger from frost is past. Propagated by offsets. Introduced in 1837.

Uropedium. From *oura*, a tail, and *podion*, a slipper; in allusion to the long-tailed petals.

Linn. Gynandria-Digynia. Nat. Ord. *Orchidaceæ.*

A genus of terrestrial Orchids nearly related to *Cypripedium.* It consists of only one described species, *U. Lindeni*, a native of New Grenada, and is found growing at an elevation of 8,500 feet above the sea level. It differs from *Cypripedium* in its broader, flattened lip, and extremely long-tailed petals. The leaves are about a foot long, oblique at the extremity, shining, and fleshy in texture. The flowers are solitary, produced on long peduncles; the sepals are ovate-lanceolate, yellow, streaked with orange; the petals are linear-lanceolate, extended into a long, narrow tail, a foot or more in length, and purple orange at the base. This is a remarkable and very interesting plant, which should find a place in every collection. It requires the same treatment as *Cypripedium.* Introduced in 1849.

Uropetalon. From *oura*, a tail, and *petalon*, a petal; the petals are lengthened into tail-like appendages. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of Cape bulbs, very singular and interesting. The flowers are green, or green and orange, borne on slender scapes in terminal racemes. They are tender, and must be kept warm and dry during winter, and planted out in the border in early spring. Propagated by offsets. Introduced in 1808.

Urtica. Nettle. From *uro*, to burn; in reference to the stinging properties of most of the species. *Linn. Monœcia-Tetrandria.* Nat. Ord. *Urticaceæ.*

The Roman Nettle, *U. pilulifera*, is sometimes grown in gardens as an ornamental annual, but the sting is much worse than that of *U. dioica*, the common Nettle. Some of the exotic species are very handsome; as, for example, *U. reticulata*, a native of Jamaica, which has red and yellow flowers and deep green leaves. There are several native and naturalized species, all troublesome weeds.

Utricularia. Bladderwort. From *utriculus*, a little bladder; applied to the small inflated appendages of the roots. *Linn. Diandria-Monogynia.* Nat. Ord. *Anonaceæ.*

A genus of curious aquatic plants, common throughout the United States. They are without interest, except that during the early ctage of the plant, the small, bladder-like appendages at the roots are filled with water; but when the flowers are ready to expand they become filled with air. After the season of flowering, the vesicles become again filled with water, and the plant descends to ripen its seeds at the bottom.

Uvularia. Bellwort. The plants were formerly used in diseases of the *uvula*; whence the name. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of very handsome hardy herbaceous perennials, with lily-like flowers, borne solitary, or rarely in pairs, on slender peduncles, from the uppermost leaves. The flowers are bright and greenish yellow. There are several species common throughout the United States, in rich, rather moist woods.

V.

Vaccaria. Cow Herb. Named from *vecca*, a cow. *Linn. Decandria-Digynia.* Nat. Ord. *Caryophyllaceæ.*

A coarse-growing hardy herbaceous perennial, formerly called *Saponaria Vaccaria.* It was introduced into the garden, but has escaped and become common in waste places.

Vaccinium. High-bush Cranberry, Blueberry,

VAL

Bilberry. An ancient Latin name, whether of a berry or a flower is not satisfactorily known. *Linn. Octandria-Monogynia.* Nat. Ord. *Vaccinieæ.*

An extensive genus of interesting shrubs, many of which are indigenous to the United States, and others to Europe and the East and West Indies. *V. macrocarpa* is the High-bush Cranberry, common in bogs North and West. *V. stamineum* is the Squaw Huckleberry, common in dry woods from Maine to Michigan. *V. uliginosum* is the Bog Bilberry, a low-growing species, common in high elevations in New England and New York. *V. corymbosum* is the common or Swamp Blueberry, everywhere common except southward. There are many other species and varieties, the slight difference in them noticeable only by the botanist. For the common Cranberry and its culture, see *Oxycoccus.*

Valerian. See *Valeriana.*

Valeriana. Said by some to be named after Valerius, who first used it in medicine; others assert that it is derived from *valere*, to be in health, on account of the medicinal qualities of *V. officinalis. Linn. Triandria-Monogynia.* Nat. Ord. *Valerianaceæ.*

Hardy perennials, most of them showy border plants of easy culture. Some of them have long been in cultivation. Those best known are natives of Switzerland. There are several native species, from which the tincture of Valerian is obtained. All the species are propagated by division.

Valerianella. Lamb's Lettuce, Fetticus, Corn Salad. A diminutive of *Valerian. Linn. Triandria-Monogynia.* Nat. Ord. *Valerianaceæ.*

A small genus of succulent herbs, natives of Great Britain. *V. olitoria*, generally known here as Fetticus, is largely grown under glass as an early spring crop. The cultivation is very similar to Spinach. Several of the species are under cultivation.

Vallisneria. Eel Grass, Tape Grass. Named in honor of *A. Vallisneri*, an Italian botanist. *Linn. Diœcia-Diandria.* Nat. Ord. *Hydrocharidaceæ.*

A genus of aquatic plants, common in slow-running waters, remarkable on account of the extremely curious manner in which the process of fertilization is effected. The male and female flowers are on different plants, and the latter rise on long spiral stalks, which gradually uncoil above the surface of the water, while the latter are produced at the bottom. Before, however, the anthers burst to discharge the pollen, the male flowers detach themselves from their stalks and rise up to the surface, on which they float like little white bubbles. After the pollen has been distributed over the stigmas, the male flowers wither, and the spiral stalks of the females coil up again so as to draw the seed-vessel under the water, that it may ripen at the bottom, and burst when just in the proper place to deposit its seeds. Nothing can be more beautiful than the whole arrangement; and nothing can show more strikingly the admirable manner in which the wonderful economy of nature is carried on. *V. spiralis*, the best known and only species in our waters, is admirably adapted for growing in the aquarium. Besides being a beautiful evergreen, one of the essentials for the aquarium, one can, by growing it, witness that wonderful and interesting phenomenon in plant life.

Vallota. Named in honor of *Pierre Vallot*, a

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French botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

V. purpurea, the only known species, is a native of the Cape of Good Hope, where it is found in boggy places. It is an evergreen bulb, producing its splendid spikes of brilliant scarlet blossoms (not *purple*, as the name implies) in August, and occasionally at other periods. It is one of the most showy of the interesting family to which it belongs, and the little care required to grow it makes it particularly desirable. It does best with ordinary pot culture, requiring liberal watering, except a few months in winter. The bulbs should not often be separated, but occasionally shifted into larger pots when they become thoroughly root-bound. Too frequent shiftings are injurious to this bulb; they do much better when pinched, and it is not an uncommon occurrence to see twenty-five flower spikes, with five to eight flowers each, at one time, from a ten-inch pot of the bulbs. They increase rapidly from offsets, which may be picked off the top of the pot without disturbing the main bulbs. They may be grown successfully in the border, and dried off in winter like the *Gladiolus*, except that they should be taken up after a slight frost and packed away in boxes of earth, without disturbing the tops, watering only once or twice during the winter. There are two or three varieties, differing only in the size of the flowers. Introduced in 1774.

Vanda. *Vanda* is the Sanscrit name of the original species of this genus. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of magnificent epiphytal Orchids from tropical Asia. Several of the species are found in our best Orchid houses, where they are most conspicuous objects, both on account of the size and beautiful colors and markings of the flowers, and for their delicious fragrance. The plants may be attached to blocks of wood or cork, and suspended from the roof of the house. From March till May the heat should range from 70° to 90°, or even more in sunny weather, and every morning and evening they should be surrounded with vapor, besides an application of water from the syringe once a day. From May till September, which with us is the blooming season, the same degree of heat should be maintained, but with a diminution of the moisture as the flowers advance; and afterward, through the winter, moisture may be withheld, and the temperature reduced to 60°. Some of the species have been under cultivation since 1810. *V. tricolor*, one of the best, was introduced in 1846. Of this species there are some fifteen or more varieties, all of great beauty. They are propagated by carefully detaching the lateral shoots when about six inches long, and fastening them to a cork.

Vanilla. An alteration of *Vaynilla*, which is a diminutive of *Vaina*, a Spanish word, signifying a sheath; in reference to the cylindrical pod being like the sheath of a knife. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of tropical, climbing Orchids, one of the most important of the whole family, not because of its flowers, but for the commercial value of the fruit, which is universally used in the preparation of extracts for flavoring. The best *Vanilla* is the produce of *V. planifolia*, a native of Mexico, but several other South American species are also used. The flowers of this genus are white striped with red, and quite insignificant; these flowers are succeeded

by pods about six inches in length and one-fourth of an inch in diameter. The pod contains, besides its numerous seeds, a substance which is black, oily, and balsamic; and when recently gathered this is humid, and its odor is said to produce intoxication. The pods are gathered during the last three months of the year, and are carefully dried by exposure to the sun's rays until they are made warm, in which state they are wrapped in woolen cloths to promote and absorb evaporation. When thoroughly cured, they are ready for shipment. The extract is obtained by cutting the pods in small pieces, and pulverizing in a mortar containing about four parts of fine glass to one of Vanilla. It requires a great amount of labor to get the Vanilla fine enough for the dilute alcohol to act upon it in a manner that will secure the whole. After the pulverized mass has been in alcohol for several days, it is filtered through paper, and is fit for use.

Vanilla or **Seneca Grass.** See *Hierochloa borealis.*

Vanilla Plant. The popular name of *Liatris odoratissima,* which see.

Variegated Bulrush. See *Scirpus.*

Variegated Laurel. See *Aucuba.*

Vegetable Oyster. See *Tragopogon porrifolius.*

Vegetable Hair. See *Tillandsia usneoides.*

Vegetable Ivory Nut. See *Phytelephos macrocarpa.*

Vegetable Marrow. See *Persea.*

Vegetable Marrow. An English name for a variety of summer Squash. The one usually grown is about nine inches long and four to five in diameter. It is used in every stage of its growth, and is particularly tender and sweet. It is grown in all respects like the several varieties of our summer Bush Squashes.

Vegetable Mercury. See *Franciscea.*

Veitchia. A name applied by Dr. Lindley to a curious Japanese conifer, since proven to be merely a deformed state of some *Abies.*

Vellozia. Derivation of name unknown. *Linn. Hexandria-Monogynia.* Nat. Ord. *Hæmodoraceæ.*

The Vellozias are like perennial Lilies, and grow from two to ten feet high, having trunks as large as a man's body, branching, and having tufts of leaves on the top like the Yucca. The flowers are large, white, blue, or violet, produced singly or on slender scapes from the tips of the branches. They are showy and attractive features in the mountain regions of Brazil and Australia.

Veltheimia. Named in honor of *F. A. Veltheim,* a German botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

Large-growing bulbs from the Cape of Good Hope. The flowers are flesh-color and of but little beauty, though of long duration. The bulbs rest the entire summer, and come into bloom in early winter. They are grown from seed, which they produce freely. The bulbs rarely divide or make offsets. Introduced in 1781.

Velvet Grass. See *Holcos.*

Venus's Fly-trap. See *Dionæa muscipula.*

Venus's Looking-Glass. See *Specularia speculum.*

Venus's Navelwort. See *Omphalodes.*

Venus's Slipper. See *Cypripedium insigne.*

Veratrum. Hellebore. From *vere,* truly, and *a'ex,* black; in allusion to the color of the roots. *Linn. Polygamia-Monœcia.* Nat. Ord. *Melanthaceæ.*

A genus of hardy herbaceous, coarse-growing plants, with large, coarse, fibrous roots, which are very poisonous. *V. viride,* a species common in swamps and marshy grounds, is popularly known as White Hellebore or Indian Poke. The powdered roots of this species are used to destroy Caterpillars, Rose Beetles, and other insects. It is the base of some of the so-called Persian Insect Powders, which should therefore be used with care.

Verbascum. Mullein. Said to be from *barbascum,* bearded; in allusion to the bearded filaments. *Linn. Pentandria-Monogynia.* Nat. Ord. *Scrophulariaceæ.*

An extensive genus of coarse-growing, weedy biennial herbs, common in neglected fields and roadsides. They are natives of Europe, but thoroughly naturalized in most parts of this country.

Verbena. Vervain. Said to be from its Celtic name, *herfaen. Linn. Didynamia-Angiospermia.* Nat. Ord. *Verbenaceæ.*

The beauty of this extensive genus is well known, and needs no comment. They are all peculiarly adapted for growing in beds in the flower-garden, and are extensively grown for that purpose. As a garden plant they are, comparatively, of recent introduction. Our garden varieties have all originated from the following species: *V. melindres,* a low, creeping plant, with intense scarlet flowers, introduced from Buenos Ayres in 1827. *V. Tweediana,* of freer growth and more upright habit, umbels larger, and florets more profuse, but of a less vivid color, was introduced in 1834 from Brazil. *V. teucrioides,* a taller growing species, of much coarser habit, with flowers of pure white, in narrow-pointed spikes, and very fragrant, was introduced from Monte Video in 1837. *V. multifida,* with lilac-purple flowers, was introduced from Peru in 1818. The late Robert Buist, Sr., of Philadelphia, was the first to introduce Verbena culture into this country. He received seeds from South America of the species named, and from these have sprung the many thousand named varieties that have from time to time been offered for sale by plant-growers. Several species have been found in the United States, and among them *V. montana,* a hardy perennial from the Rocky Mountains, a very free-flowering species, with flowers of a bright rose, changing to lilac; a decided acquisition to the flower-garden. *V. aubletia,* with spikes of showy purple flowers, a hardy biennial, is found in Illinois and westward. Verbenas are easily grown from seed, which should be sown in a hot-bed or the green-house in early spring, and at once pricked out before planting in the flower-bed. Plants from seed will be more vigorous than from cuttings; but when special colors are wanted seedlings cannot be depended upon. At the low price the plants are now sold in the markets, it is cheaper to buy them than to grow them from seed; but when the amateur is not convenient to the florist, the supply can be easily kept up from seed. In growing Verbenas, successive plantings should not be made on the same ground; the less frequently the better. It is not that they exhaust the soil that renders a change necessary, but when grown more than once on the same spot, they are far more liable to be attacked by the Aphis at the roots, which is fatal to them. The varieties selected by florists in the United States are far superior to those of Europe, so that for the past ten years hardly any importations have been made of either seeds or plants. The plant is better suited to our climate, and is far more extensively cultivated here than in Europe. The Verbena delights in a

sweet, turfy loam; clayey or sandy soils should be avoided in the selection of the bed.

Verbena, Sweet-Scented. See *Aloysia*.

Verbena, Lemon. See *Aloysia*.

Veronica. Speedwell. The derivation of the word is unknown. *Linn. Diandria-Monogynia.* Nat. Ord. *Scrophulariaceæ.*

An extensive genus of, for the most part, hardy ornamental plants, well adapted for the borders of the flower garden. Their stature varies from creeping plants to others three or four feet high. The prevailing color is blue, though white, pink, red, and purple are found among them. The green-house species deserve attention, being easy to grow and flower, and they are handsome in foliage, habit, and inflorescence. This class delights in a mixture of leaf mould and loam, and with plenty of root room speedily make fine specimens. The species usually met in the green-house are from New South Wales. The hardy herbaceous species are distributed throughout the temperate regions of both continents. Propagated by cuttings.

Vervain. See *Verbena*.

Verschaffeltia. A genus of very beautiful Palms from the Seychelle Islands, formerly known as *Regelia*.

Vetch. See *Vicia*.

Vetchling. Everlasting Pea. See *Lathyrus*.

Viburnum. Arrow-wood, Laurestinus. From *vieo*, to tie, because of the pliability of some of the branches. *Linn. Pentandria-Trigynia.* Nat. Ord. *Caprifoliaceæ.*

An extensive genus of ornamental shrubs, generally with terminal corymbs of white flowers. One of the best known species is *V. tinus*, popularly known as Laurestinus, an evergreen bush or low shrub, with white flowers that are rose-colored in the bud. It is a desirable house plant, (when it can be kept at a low temperature,) as it is easy of cultivation and keeps in flower nearly the whole winter. It will thrive finely in the Southern States, planted in the open border. *V. Lentago*, a native species, common from Maine to Georgia, is a very handsome low-growing tree, and well worth a place on the lawn. Its rich green foliage and profusion of flowers in spring, its numerous clusters of fruit and richly-colored foliage in autumn, enhance its value as an ornamental tree. This is commonly known as *Sweet Viburnum*, or Sheep Berry. The Wayfaring Tree, or Wild Guelder Rose, (*V. lantanoides*,) is another interesting small tree; and *V. cotinifolium* is a beautiful species from Nepal. The most interesting kind of Viburnum grown in small gardens is, however, the Guelder Rose, or Snowball Tree, *V. opulus*. This is a deciduous shrub, a native of Europe and part of Asia, and is usually found in swampy thickets. In a wild state its principal beauty lies in its bright red berries; but in a state of cultivation its heads of flowers become so compact, of such a snowy whiteness, as amply to justify its popular name of the Snowball Tree. *V. plicatum* is one of the most desirable of the species, and is of a better habit than the preceding. Most of the Viburnums are hardy. They are generally propagated by layers, but cuttings will strike freely if kept moist, and in a shady situation. When transplanted, the evergreen species should be removed in October or November, as they have few fibrous roots, and are very apt to be killed by a continuance of dry weather if they are transplanted in spring.

Vicia. Vetch. From *vincio*, to bind together; referring to the clasping tendrils. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A very extensive genus of hardy climbing annuals and herbaceous climbing perennials. Some are common weeds, while others are grown for food for all kinds of cattle. They are mostly natives of Europe, one or two only being found in this country. The ornamental species are generally pretty climbing plants, with purplish flowers. They are natives of Europe. Some of the kinds, however, have white, some pink, others blue, and others pale yellow flowers. All the kinds grow freely, though they thrive best when the soil is deep and sandy. They are propagated by seeds or division of the roots.

Victoria. Named in honor of her Majesty, Queen Victoria of England. *Linn. Polyandria-Monogynia.* Nat. Ord. *Nymphæaceæ.*

A magnificent genus of plants, consisting of one species, as some think, or three species, according to others. Dr. Masters, in the Treasury of Botany, speaking of these noble plants, says: "They are aquatic plants, with thick, fleshy root-stocks, marked with the scars of former leaves, and sending upward numerous long, cylindrical leaf-stalks, which are traversed in the interior by several air-canals, the larger of them arranged with much regularity, and are thickly covered on the outside by stout conical prickles. These prickles have spiral vessels and a small cavity in their interior, opening by a little pore at the top. From the under surface of the base of the leaf-stalks numerous adventitious roots are given out. The blade of the leaf is peltate, circular in outline, and when fully developed is from six to twelve feet in diameter, its margin uniformly turned upward to the extent of two or three inches, so that the leaves, when floating, have the appearance of so many large, shallow trays. The upper surface of the leaf is of a rich green color, and studded with little boss-like prominences. The lower surface is of a deep purple or violet hue, and traversed by several very prominent nerves, which radiate from the center to the margin of the leaf, and are connected one with another by smaller nerves running transversely, so that the whole of the under surface is divided by compartments into a number of irregularly quadrangular spaces or cells. The nerves themselves are permeated by air canals, and covered by strong spines. Thus the enormous leaves are well adapted to float on the water; and the extent of surface exposed is so great that a considerable weight can be supported without submerging them. Even a child of twelve years of age may be borne up, if the precaution be taken of first placing on the leaf a small piece of board, to prevent the feet from tearing and slipping through its surface. The flower-stalk has a similar outward appearance to that of the leaf, but is stouter, and its air-canals are arranged in a different manner. The flower bud before expansion is pear-shaped. The calyx is adherent below to the ovary, and is here covered with prickles; its limb, however, is destitute of these appendages, and is divided into four ovate deciduous sepals, of a rich purple tint externally, and whitish internally. The petals are very numerous, in several rows, and (as in our common Water Lily) exhibit a gradual transition in their form to that of the stamens, so that it is somewhat difficult in all cases to decide where the one set of parts ceases and the others begin. The outer petals are rather larger than the sepals

or lobes of the calyx, oblong, concave, and white, the inner ones gradually becoming narrower, more pointed, and of a beautiful deep rose color. When fully expanded the outer petals are bent downward, while the central rose-colored ones, with the stamens, remain erect; and thus a noble appearance is presented, as of a central rose-colored crown supported by a series of pure white and most gracefully curved petals. The stamens are numerous, the outer ones somewhat lance-shaped, gracefully curved, of a fine rose-color, and having two linear anther cells on the inner face, near, but not quite extending to the top. Within these fertile stamens are other sterile ones, smaller in size, less highly colored, arching over the stigmas, to which they approximate also in color and form. The ovary is adherent to the calyx tube, somewhat globular or top-shaped, its upper portion hollowed like a cup, and presenting in the center a little rounded or conical knob. Along the upper margin of the cup are placed the stigmas, fleshy, pointed bodies, somewhat flattened at the sides, and bent in the middle, so that their points project over the cup toward the center. Each stigma has a prominent line along its upper surface, running down to the central knob, which is thus the focus of a series of ridges, radiating toward the stigmas. The interior of the ovary contains numerous cavities corresponding to the stigmas, and each containing several ovules. The fruit, when ripe, is a sort of globular berry, thickly beset with formidable prickles. The seeds escape by the rotting of the outer portions of the fruit. These noble plants inhabit the tranquil rivers of South America, especially those which are tributary to the Amazon. They differ in the size of the seeds and other particulars; but when it is remembered how variable aquatic plants are, it is better, for the present at least, to consider them as forms of one rather than as distinct species. Generically, *Victoria* is most nearly allied to *Euryale*, but it is distinguished by the deciduous sepals, by the gradual transition in the form of the petals to that of the stamens, by the more numerous cavities of the ovary, and other particulars. The leaf of *Euryale* is, however, an exact miniature copy of that of the *Victoria*, save that it is not turned up at the margin.

"The earliest traveler who discovered this plant was Hænke, in 1801. Bonpland subsequently met with it; but M. D'Orbigny was the first to send home specimens to Paris in 1828. They were, however, neglected or overlooked. In a work published some few years after this time, M. D'Orbigny mentions having discovered the plant in the River Parana in Guiana. It was known, he says, to the natives by the name of *Irupé*, in allusion to the shape of the leaves, which resembles that of the broad dishes used in the country. The Spaniards call the plant Water Maize, as they collect the seeds, and eat them roasted. In 1832 a German traveler found it in some tributaries of the Amazon; but it was not until the late Sir Robert Schomburgk discovered it in the Berbice River, in British Guiana, in the year 1837, that public attention was drawn to the magnificent plant." Sir Robert, in a letter to the Royal Geographical Society, thus describes his first sight of the plant: "It was on the first of January, 1837, while contending with the difficulties that nature interposed in different ways to hinder our progress up the River Berbice, that we arrived

at a part where the river expanded and formed a currentless basin. Some object on the southern extremity of this basin attracted my attention, and I was unable to form an idea what it could be; but, animating the crew to increase the rate of their paddling, we soon came opposite the object which had raised my curiosity, and, behold, a vegetable wonder! All calamities were forgotten. I was a botanist, and felt myself rewarded! There were gigantic leaves, five to six feet across, flat, with a broad brim, light green above and vivid crimson beneath, floating on the water; while, in character with the wonderful foliage, I saw luxuriant flowers, each consisting of numerous petals, passing in alternate tints from pure white to rose and pink. The smooth water was covered with the flowers; and as I rowed from one to the other I always found something new to admire." In 1845 Mr. Bridges, an English traveler, while riding along the River Yacouma, a tributary of the Mamore, came across a large colony of the *Victoria*, and succeeded in collecting a quantity of the ripe seeds, which he took with him, soon thereafter, to England. Some of them he intrusted to Sir Joseph Paxton at Chatsworth, who succeeded in producing the plant in November, 1849, and presented a flower to the Queen at Windsor Castle, where a brilliant assemblage met to admire the new and beautiful treasure. The *Victoria regia* has been successfully grown in several private collections of plants in the United States, and about twenty years ago was publicly exhibited at Tripler Hall, in the City of New York, by the New York Horticultural Society, where it attracted thousands of wondering admirers. There was a little romance connected with this exhibition of the plant, the particulars of which have been furnished by Mr. Peter B. Mead, as follows: "I will tell you briefly the particulars connected with the exhibition of the *Victoria regia* by the New York Horticultural Society at Tripler Hall. I was chairman of the committee of arrangements. Mr. Caleb Cope, of Philadelphia, was the first to grow and flower the *Victoria* in the United States. I was one of his correspondents, and just at the time of our exhibition he informed me that his *Victoria* was in full bloom. I wrote him, begging a leaf and a flower for our exhibition. The answer came, with a liberality that always characterized Mr. Cope, that I could have a plant, with all the flowers and buds, if I would send for it. I concluded to go myself, and my associates undertook to build a tank some twenty-five feet in diameter, and send notices to all the papers that the *Victoria regia* would be on exhibition the next day. I took Mr. Lenoir with me, and we met Mr. Cope at Tacony (opposite Philadelphia) waiting for us. We rode up to Mr. Cope's country seat, where, to my surprise, I found the *Victoria* already splendidly packed in moss in a box about seven feet square and nearly two feet deep. There was about an hour to spare, and that was devoted almost entirely to the large Lily house, built expressly for the *Victoria*, but containing many other aquatics, Ferns, Orchids, etc. The tank was about thirty feet in diameter, the chill taken off the water by a hot-water pipe, and the water kept in motion by a small water-wheel placed at the point where the water entered the tank. It was a miniature of the water-wheel that you will see at almost any grist mill. The whole house was so fascinating that even now it makes me forget my adventure with

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the plant in the box. The plant had preceded us to the railroad station, and when we arrived there I immediately sought the conductor, to make arrangements for the transportation of the box. He said his train was a passenger train, and he could not take it. I explained to him the nature and urgency of the case, and pointed to an empty truck as being just the thing. He began swelling fearfully with the pride of a little brief authority, as most small men do, said he would not take it anyhow, and walked off. I felt that I was in a 'fix.' I looked at Lenoir, he looked at me, but neither said a word. There was no freight train till past midnight. The time was getting short, as the boat with the Philadelphia passengers was approaching the dock. I looked again at the empty truck, and in doing so saw two idle men near by. In an instant I had made up my mind what to do. I requested Mr. Lenoir to take a seat in the car. I approached the two men, put a liberal amount of money in their hands, and told them I wanted that box put on the empty truck. I waited till the conductor was out of sight, and just then the train began to move. I gave the word to the men, the box went on the truck, and I went on the top of the box, and there I remained till the train reached Jersey City, about midnight, determined that the box should not go off unless I went with it, and that I would not go without a fight. I had a dismal time of it, for the night was dark and chilly; but I had Her Majesty, *Victoria regia*, under my care, and did not mean to abandon her; besides, I was anxious that the Society should keep its faith with the public. In a certain sense it was an affair of honor. I was in a measure cheered by seeing Lenoir's anxious face occasionally at the door of the car immediately in front of me. The darkness favored me, for it was not till we reached Elizabeth that the conductor discovered me on the box. He came near me with his lantern, but seemed suddenly to change his mind, and walked away. After a while I began to suspect that he was fixing a trap for me. Arrived at Jersey City, Lenoir came to me immediately. I told him to go quick for some men, and he soon returned with three. They took off the box, and we got to the gate just as the last two passengers went out, and the keeper was closing the gate after them. I took hold of the gate and told him to stop, as I wanted to get that box through. He pushed and I pulled. He said the conductor had ordered him not to let the box pass. I thought I was caught at last, but my good nature (or good genius) did not at this moment desert me; if it had, the public of New York would have missed the pleasure of seeing the most magnificent of water plants. I said to the man, coaxingly, 'See here, neighbor; the conductor don't understand this thing at all. That box contains a very valuable plant, and it will die in that box before morning. Now do move a little further back, so the men can get through.' All this time I was pushing him back gently, till at length the gate was open wide enough for the box to pass, when I said to the men, 'Now quick, or the boat will be off.' I ran ahead, paid the fares, had the large gate opened, and the box was placed on the boat just as it was leaving the bridge; but the men got caught, and had to go to New York; and I was soon glad of it, for they proved to be very helpful on the other side. Lenoir and I went into the cabin, and congratulated ourselves on the end of our troubles; but we anticipated, for the end was not

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yet. On arriving in New York, not a vehicle of any kind was to be found, owing to the lateness of the hour. We were in a quandary, but I said to Lenoir, 'Well, we've got so far, and that box is going to Tripler Hall to-night, somehow.' Just then a hack hove in sight, and was stopped. I told the driver I wanted him to take that box to Tripler Hall. He said he couldn't. I thought this was my last chance, and told him he must. It all ended by placing the box on the top of the hack, and securing it by ropes and straps. Lenoir and I got inside, and we all, box included, arrived safely at Tripler Hall about half past twelve, and were warmly congratulated. The tank was done and filled with water. The box was soon unpacked, and Lenoir and I had the supreme pleasure of seeing the magnificent plant, with its charming flower and buds, peacefully floating in its native element. We were abundantly rewarded for all our anxiety and trouble. It will give point to this little adventure when I state that I dared not leave the box long enough to purchase a ticket, and *Victoria* and myself consequently came through without paying so much as a penny. At that time Mr. Geo. Wm. Curtis was our Corresponding Secretary, and also city editor of the New York *Tribune*. He waited at the Hall until our return; and after hearing our adventures, went to the office, and the whole thing appeared in print the next morning, and had something to do with the great crowds that for three days came to see the *Victoria*. And this is how the plant came to be exhibited by the New York Horticultural Society. Mr. Cope very kindly gave me two young plants of the *Victoria* and some ripe seeds. One of these was presented to the late William Niblo, who made a small tank for it; but in a couple of years it outgrew the tank, became sickly, and died, and a similar fate overtook the other. I succeeded in growing some of the seeds in a firkin filled one-third with leaf mould and sand and the rest water. The plants died for want of room. The *Victoria* was grown one season, if not more, in a tank in the open air; but the proper place for it is under glass. Its management is not so difficult as was at first supposed, and it may now be found in several collections. It requires treatment similar to that of the *Nelumbium*.

Vieusseuxia. Named in honor of *M. Vieusseux*, a Swiss botanist. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ*.

Small bulbs from the Cape of Good Hope, usually known as the *Peacock Iris*, on account of their very brilliant flowers, varying from white to crimson and purple. They are not hardy, but will grow well with partial protection, like most of the Cape bulbs. They are rapidly increased by offsets. Introduced in 1776.

Vigna. In memory of *Dominic Vigni*, a commentator on Theophrastus. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ*.

A few trailing and climbing plants, allied to *Dolichos*, the principal distinction being the yellow flowers and cylindrical seed pods, while the *Dolichos* has purple and white flowers, and flattened pods. The genus is chiefly South American, one or two species being found in the Southern States. Propagated by seeds.

Vilfa. See *Rush Grass*.

Villarsia. Named in honor of *D. Villars*, a famous French botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Gentianaceæ*.

A small genus of aquatic plants and herba-

ceous perennials. The flowers are in axillary clusters or terminal panicles, and mostly of a yellow color. *V. nymphoides*, a native of England, and one of the finest species, is an aquatic of easy culture, and well adapted for the aquarium.

Vinca. Periwinkle, Creeping Myrtle. Probably from *vinculum*, a band; in allusion to the suitableness of the shoots for making bands. *Linn. Pentandria-Monogynia.* Nat. Ord. *Apocynaceæ.*

A well-known genus of hardy herbaceous, evergreen, trailing plants, and green-house, low-growing, woody herbs. *V. major* and *V. minor* are respectively the *Large-leaved Periwinkle* and the *Common Periwinkle*, known in cottage gardens as Myrtles. They are natives of Europe, and have long been in cultivation. They are much used in cemeteries for covering graves, the deep green of the leaves contrasting with the delicate blue flowers. There are varieties with gold and silver-edged leaves, not quite hardy in the Northern States, but considerably grown for basket plants and conservatory decoration. *V. rosea* is a beautiful green-house plant, with flowers pure white, white with rose eye, and plain rose-colored. They grow from twenty to thirty inches high, and are completely covered with flowers the entire summer. They do quite as well planted in the open border as when grown in the green-house. They are natives of the East Indies, and are, consequently, tender, requiring nearly as high a temperature as Coleus or Bouvardia. Introduced in 1776. These plants may be grown from cuttings or from seed, the latter being preferable. The seed should be sown in the hot-house or hot-bed about the first of January, in an average temperature of not less than 70°, and grown on in the same manner, and planted in the flower garden at the same time as other tender bedding plants. Planted eighteen inches apart each way, they completely cover the ground.

Vine. See *Vitis.*

Viola. Violet, Heartsease, Pansy. Latin name of the flowers. *Linn. Pentandria-Monogynia.* Nat. Ord. *Violaceæ.*

This genus consists of more than one hundred and fifty species, indigenous in North America, Europe, Asia, China, and Japan. Some of the species occupy a prominent position in the flower garden and the commercial green-house. The genus includes *V. odorata*, the well-known hardy English Violet, and its many varieties, so common in cultivation. This species, by common consent called English Violet, is indigenous throughout Europe, parts of Asia, China, and Japan. It is unquestionably the Violet of the ancients, as it is correctly described by Dioscorides, who recommends it for its medicinal virtues, as well as for its fragrance and beauty. Of this species there are many varieties, and of these some are white, some blue, some purple, light and dark, and both single and double. The most interesting and the most generally cultivated are the Neapolitan and Russian Violets, and of each of these there are varieties with distinctive names, and among them the Maria Louise, a dark purple, is prominent. (The Russian Violets are credited to the species *V. suavis* by some writers. Loudon, however, says they are varieties of *V. odorata.*) The Neapolitan, light blue, and Maria Louise, dark blue, are the Violets most generally cultivated, as they can be made to flower all the winter. They are grown in frames and in green-houses with and without artificial heat. Formerly they were more grown in cold frames than in green-houses, but many of the growers have abandoned frames, and grow them in small houses, giving only sufficient heat to protect the plants from frost. Some grow them in pots, while others plant them out on the bench; each way has its earnest advocates, and either way will give good flowers, largely in proportion to the care given; and there is no plant grown that requires more, or will usually better repay that which is given. The essential in Violet culture is a strong calcareous soil, one that will retain moisture without becoming soddened; a low temperature (not to exceed 40° at night or 60° during the day, ventilating whenever practicable) without bottom heat, the water applied without wetting the foliage, and the plants kept clean from decayed leaves and runners. With these attentions, failures in Violet culture will be rare; without them success will be equally rare. Thus far there have been no free-flowering double white varieties worthy of cultivation. There are several of our native species worthy of cultivation in the border, particularly where there is considerable shade; the best of these is *Viola pedata*, or Bird's-foot Violet, a species that abounds in many parts of the country, but nowhere more plentifully than what is termed the Plains of Long Island, where, in early spring, may be seen acres of ground completely covered with these mauve-colored flowers, sparingly mixed with its varieties, with pure white, and light blue with purple striped flowers. This species improves by cultivation, and can be removed from its native home without the slightest danger of failure. An important feature is that it will grow anywhere, in sun or shade, preferring a light sandy soil. In a favorable situation the flowers will be an inch across, and produced in such abundance as to completely cover the bed. Where they can be used as a border plant, they are very effective. The species of the greatest importance as a florist's or as a garden flower is *V. tricolor*, or Pansy, which see. All of the species are interesting, but too numerous to be specially noticed.

Viper's Bugloss. See *Echium.*

Virgilia. Yellow Wood. Lamarck dedicated this genus to the poet *Virgil*, whose "Georgics" contain many things interesting to botanists. *Linn. Decandria-Monogynia.* Nat. Ord. *Fabaceæ.*

This genus includes several species, none of which are of special interest excepting *V. lutea*, a native species, indigenous in East Kentucky and southward. It is a moderate-sized tree, with a compact head, which usually has a tendency to be heavier on one side than the other. It has compound leaves, not unlike the Hickory, though of a brighter color, which it retains until frost. The flowers appear in May, in large panicles or clusters, from six to eight inches long, pure white, pea-shaped, and in such profusion as to almost clothe the tree, making it a beautiful object for the lawn. A noticeable feature of this tree is, that it commences to flower when only a small shrub, making it desirable for the lawn. It seems to be perfectly hardy, though in many places it does not thrive well; but for that it would have few superiors for the lawn. Recent botanists have transferred *Virgilia lutea* to *Cladrastis tinctoria*, a new genus. Propagated from cuttings or from seed.

Virginia Cowslip or Lungwort. The common

name of *Mertensia Virginica*, sometimes called *Pulmonaria Virginica*, a rather pretty herbaceous plant, occasionally grown in the ornamental border. See *Mertensia* and *Pulmonaria*.

Virginia Creeper. See *Ampelopsis hederacea*.

Virginian Snakeroot. See *Aristolochia serpentaria*.

Virgin's Bower. See *Clematis Virginiana*.

Virginian Stock. See *Malcomia*.

Viscaria. Rock Lychnis. From *viscus*, birdlime; in allusion to the glutinous stems of the species. *Linn. Decandria-Decagynia.* Nat. Ord. *Caryophyllaceæ.*

These are handsome hardy annuals, particularly *V. oculata*, whose pretty pink and purple flowers are very pleasing. They make the best appearance when sown in masses, which may be done in April and May, to afford a display through the whole of the summer months. Many of the plants of this genus are now included in *Lychnis*, which see.

Viscum. Mistletoe. From *viscus*, bird-lime; on account of the sticky nature of the berries. *Linn. Diœcia-Pentandria.* Nat. Ord. *Loranthaceæ.*

We copy from Mrs. Loudon's "Gardening for Ladies" a description of *V. album:* "This curious parasite can hardly be called ornamental, though it may be sometimes introduced with effect to give an air of antiquity to newly-planted pleasure-grounds. It grows best on old cankered Apple Trees, but it may be made to take root on even a young tree, by pressing a berry on a crack in the bark, and then tying oiled paper over it. As, however, the male and female flowers of the Mistletoe are on separate plants, the berries are not always fertile. It is a vulgar error to suppose that the Mistletoe grows generally on the Oak, as it is extremely rare on that tree in England. It is found most commonly on the Apple, and next on the Hawthorn; it is also found on the Lime, the Sycamore, the Willow, the Poplar, and the Ash, occasionally on the Cherry and sometimes, though rarely, on Pines and Firs. When the seeds begin to grow, they send out first one or two roots, which ascend for a short time, and then turn back to the bark, on which they fix themselves, like the sucker of an insect. The other end afterward detaches itself from the tree, and becomes leaves and shoots. The roots of the Mistletoe descend between the bark and the young wood, and no intimate union takes place between the old wood of the parasite and its supporter. The wood of the Mistletoe is of a very fine pale yellowish tinge, and it is as hard and of as fine a grain as box, which it greatly resembles, while that of the thorn is dark brown." The never-lessening demand for the Mistletoe for use at the Christmas Holidays in England has of late years induced nurserymen to begin its cultivation on the Apple, which is now done to an extent that keeps the "boughs" at a reasonable rate. The English steamers often bring over a supply for Christmas in New York, but we have never seen it arrive in perfection, the berries, the chief attraction of the plant, having mostly dropped off. The *American Mistletoe*, or *False Mistletoe*, is *Phoradendron flavescens*, common in New Jersey, southward and westward, where it has in many instances proved destructive to the forest trees upon which it fastens itself. In the more northern sections where it grows, it is occasionally killed out by severe cold weather, but soon reappears. It is the most destructive to the Elms, Hickories, and Wild Cherries. It is

not so ornamental as the English Mistletoe, and cannot be used as a substitute.

Vitex. From *vieo*, to bind; in allusion to the flexible branches. *Linn. Didynamia-Digynia.* Nat. Ord. *Verbenaceæ.*

A genus of interesting plants. They are mostly tender evergreen shrubs, natives of the tropical regions of both hemispheres. They are aromatic plants. *V. Agnus Castus*, with whitish-blue flowers, is perhaps the best-known species. Propagated from cuttings.

Vitis. The Vine. From the Celtic *gwid*, pronounced *vid*, signifying the best of trees. Wine is derived from the Celtic word *gwin. Linn. Pentandria-Monogynia.* Nat. Ord. *Vitaceæ.*

Although the hardy varieties of Grapes do well in nearly all parts of the country, there are few sections, with the exception of California, where the European or foreign Vine does well in the open air. For this reason, the only certain method of obtaining these fine varieties in perfection is by the use of the Cold Grapery. There is no addition to a country home from which such a large amount of satisfaction can be obtained at so small an outlay as from a Grapery for growing the different varieties of foreign Grapes. Besides the luxury of the European Grape as a table fruit, the Vines, when loaded with the ripe fruit of the various rich colors found in the foreign Grape, are ornaments more pleasing to most people than the gaudy flowers of the conservatory. And as this fruit can be obtained at a trifling original outlay, and with but little attention in the cultivation afterward, we will briefly describe the methods in use here, which are much simpler than those in Europe, from our having brighter sunshine during the summer months. Our climate being so well adapted to the cultivation of vines under glass without fire heat, the wonder is that Cold Graperies are not in more general use even by people of moderate means. A Cold Grapery 75 feet long by 20 wide, finished in very good style, would cost but little more than $1,000. If planted in June, the third year from planting upward of 400 pounds of fruit can be taken from it; the next season it will yield nearly double that weight. The building is begun by setting locust posts four feet apart; on these the sill is framed, on the front of which are placed upright sashes two and a half feet in height, and on these the gutter. From the gutter is sprung the bars, ten inches apart each way, running on the east side clear to the ridge pole; on the west, framed to within two feet of it, so as to give room for lifting sashes. These are two feet wide by six long. To these sashes, twelve in number, is attached the ventilating apparatus, which, by turning a crank, opens these sashes from one to twenty-four inches, as desired. The front sashes may be made so that every alternate one can open outward. The glass used is known as second quality American, 8 by 10 inches, and put in without the use of any putty on the top of the glass, the manner of glazing being to bed the pane in soft putty, pressing it down tightly, and then tacking in the glass with large glazing points. We find it an excellent plan in glazing to turn the edge of these points, so that they can catch on the edge of the overlapping pane, to keep it in place, otherwise it would slip down, and give a great deal of trouble. Glass should never be lapped more than one-eighth of an inch; if much more, the water gets between the laps, and when it freezes the glass is cracked.

With these instructions about the erection of the glass and wood-work, any intelligent mechanic should be able to build a house. If hydrant water is not obtainable, provision should be made by building a cistern inside the grapery, say six feet deep by ten feet in diameter, or that capacity in any shape desired. This cistern is supplied by water from the roof, having a waste-pipe for overflow. These general directions for such a structure are applicable for any size or style of Grapery. The structure should face east and west, with equal span on each side. Some are built in the form of a "lean-to," as it is called, facing south or southeast, and wherever there is a building, wall, or perpendicular rock, this style can be constructed very cheaply. If a base width of twenty feet is desired for the Grapery, the height at front should be from two to three feet; the slope of the roof, which should be at an angle of forty degrees, would thus give the height at the back. Such a structure, where the back wall is already up, may be put up at a cost of from $5 to $10 per running foot, according to locality.

The formation of the border in which the Vines are to be planted is a matter of the first importance; for if that has been improperly made, all else, no matter how well done, will fail to accomplish good results. It used to be thought that it was necessary to have borders made to the depth of three or four feet, but experience has well demonstrated that such a depth is not only unnecessary, but injurious. The outside border for the Grapery (and for Cold Graperies that is all that is required) need not be more than one and a half feet in depth; and the width, to begin with, need not be more than ten feet, though twenty feet are none too much for the necessities of the roots when the Vines have attained two or three years' growth, so that it is just as well, when time will permit, to make the border of its full width at once. In forming the border the natural ground should be excavated to the required depth of eighteen inches, the bottom having a fall of at least half an inch to the foot from the front wall of the Grapery to the extremity of the border, where a drain of sufficient capacity must be made to rapidly carry off the water. In our own practice we prefer to cover the bottom over with an inch or two of cement, to prevent the roots penetrating into the cold subsoil; though, if the subsoil is of sand or gravel, there is no particular necessity for this. An excellent compost for the formation of the Vine border is made by using say nine parts of sod taken from the surface of any good pasture land; if the soil be heavy, however, it should be liberally mixed with lime rubbish, brick bats, or any material of that nature, so that it does not become too heavy and sodden. To the nine parts of such compost one-tenth part of broken bones should be thoroughly mixed through it. When filling the excavation, at least five inches should be allowed for settling; so that, if the excavation is eighteen inches deep, the compost should be filled in to a depth of twenty-two or twenty-three inches. The border being entirely on the *outside* of the grapery, it is there, of course, that the roots must be set, while the tops are drawn inside through holes made by arching or otherwise in the front wall. The Vines should be planted at three or four feet apart, and should be plants at least four to five feet long and thoroughly ripened. It makes but little difference what the age of the Vine is, provided it is of the required size and ripeness. The best time for planting is in April, though, when that is not practicable, it will do as late as the middle of June, as the main growth of the Vine is made during the warm months of the summer. Vines set out even as late as June, if the preparations of the border have been rightly made, will have grown a single shoot twenty-five to thirty feet by October. Only a single shoot is allowed to grow, and this is cut back in November or December to the bottom of the rafter, or about three or four feet from the ground. If desirable, a bunch or two may be taken from each of the Vines the second year, although it will somewhat weaken them to do so. It is therefore preferable to repeat the same operation of growing one shoot only again to the top of the rafter. This shoot may now be cut back to say eight feet from the ground, and will this year (the third after planting) give a good crop, which is taken from the lateral or side shoots, still allowing the main or leading shoot, as before, to get to the top of the rafter; for the Vine is not strong enough yet to bear fruit the whole length of the cane. The fourth year after planting it may be cut back to within five or six feet of the top, and the fifth year will be able to bear a full crop the entire length of the rafter, which, in a house of twenty-five feet, span roofed, will be about sixteen feet long, or in a lean-to of twenty feet wide, about twenty-five feet. The variety best fitted for the Cold Grapery is the Black Hamburgh. In a house requiring twenty vines we should advise twelve Black Hamburgh, and the balance selected from the following list of old and established kinds: Muscat Hamburgh, Royal Muscadine or Chasselas de Fontainebleau, Grizzly and White Frontignan, Trentham Black, Charlesworth Tokay.

In the fall, in November or December, the vines are laid down along the front wall after being pruned, and covered completely with soil until May, when they are taken up and tied to the wires, which are $\frac{1}{4}$ galvanized iron, and run across the rafters fifteen inches apart and fifteen inches from the glass. The training followed is what is called the "spur" system, which is simply to allow one cane or shoot to each Vine, (planted three or four feet apart,) and pruning the side shoots or "bearing wood" annually back to one eye. In the summer treatment of the Cold Grapery the principle must never be lost sight of, that to keep the Vines in perfect health, a temperature of not less than 65° at night, with 10° or 15° higher during the day, is always necessary. Any rapid variation downward is certain to result in mildew. The floor of the Grapery should be kept dashed with water at all times, unless in damp weather, from the time the buds start until the fruit begins to ripen, except during the period the Vines are in flower, when it should be dispensed with until the fruit is set. In dry weather, copious watering is necessary for the border outside. The summer pruning of the Grapery consists simply in cutting off the laterals, or side shoots which start from where the leaf joins the stem, to one leaf. In winter, three or four inches of well-rotted stable manure is spread over the border, and over that six inches of leaves or litter; this is raked off in spring, and the manure forked in, the object being to feed the roots from the top of the border. We are so much impressed with the advantage of covering up the Vines, both

tops and roots, that we practice it even with the hardy varieties out of doors, with the very best results, having found, by actual experiment, that when covered up they are less subject to mildew. All plants of a half-hardy character may be kept in the cold Grapery, such as Roses, Pomegranates, Oranges, Crape Myrtles, Pampas Grass, Tritomas, Carnations, etc., care being taken that the pots or tubs in which they are planted are plunged in leaves, tan, or some such substance, so that the roots do not freeze. The Cold Grapery makes an excellent poultry-house in winter, only, if put to that use, care must be taken that the buried Vines are secure against the scratching of the hens.

In the construction of the Grapery for forcing by artificial heat, the best plan is the "lean-to" style, previously described. This should face the south, or southeast, so that it will be able to get all the sunlight possible in the winter and spring months, for forcing is often begun in December and January, so as to have the fruit ripe in April and May. A skillful grower will usually ripen his crops in four months or a little more, but not all kinds alike, as some naturally ripen earlier than others with precisely the same treatment. In forcing Grapes, it is essential to have the border outside covered up with leaves or manure of sufficient depth to prevent the frost getting to the roots; as, if heat is applied inside to the Vines while the roots are frozen, it will injure them seriously. When Vines are started to force very early, say January 1st, sufficient covering of manure and leaves should be placed on the border to raise the temperature of the soil to at least 60°, if the best results are to be obtained. If started five or six weeks later, so much covering would not be necessary. No matter at what season the Grapery is started, the temperature to begin with, say for the first three weeks, should not exceed fifty degrees at night, with the usnal day temperature of 10° to 15° higher, increasing gradually until the buds begin to be developed, which will be from five to six weeks, to a temperature of 65° degrees at night, with 15° higher in the daytime. In another four or five weeks the fruit will be set, when the temperature may run from 70° to 75° at night, with the 10° to 15° higher during the day. When the berries are about the size of small pease, it is indispensable to thin nearly half of them out with the Grape scissors, else they will not attain half their size, and the bunches will be so compact that it will be impossible to detach the berries without mashing them. Inexperienced Grape-growers almost invariably err in leaving the berries too thick on the bunch, and often, also, too many bunches on the Vines, which not only results in the fruit being inferior in quality, but no more weight even is obtained. In regard to kinds to plant, we should here, as in the Cold Grapery choose a large proportion of the Black Hamburgh, next the Muscat of Alexandria, Maddresfield Court Muscat, and then Trentham Black, Muscat Hamburgh, Lady Downe for late, Chasselas de Fontainebleau for early, Grizzly Frontignan, Alicante, Black Damascus, and similar good kinds. For market, Black Hamburgh and Muscat of Alexandria are found to be the most profitable.

If proper attention has been given in forcing the Grapery to the right degrees of temperature and moisture, there should be no mildew; but as a preventive in case of accidents, it is safest, as soon as firing begins, to paint the hot-water pipes with a mixture of lime and sulphur. The pipes, when heated, evaporate the sulphur fumes, which are certain to destroy the germs of mildew. Accidents often occur by leaving the water in the pipes in the Graperies at the season they are resting and exposed to frost, which is often severe enough to freeze the water, which, expanding, bursts the pipes. It is always safest not to wait until fall to empty them, but to do so as soon as firing is stopped in the spring and summer. It is often customary, after pruning the Vines, to peel the loose bark from the canes and wash them with a mixture of sulphur and lime, to destroy insects; but there is no necessity for this, in our opinion, if the practice of burying up the stems in the soil is resorted to, as described in our instructions for the Cold Grapery. We have resorted to this practice for many years, and though we have never either peeled off the rough bark or washed them, we have never been troubled with insects of any kind.

Having briefly presented an outline of the methods pursued in the cultivation of the foreign Grape under glass, we propose to treat the hardy native Grape in the same brief manner. The vineyard culture of the native Grape has made rapid strides within the past fifteen years, and is fast assuming a chief place among the industrial interests of the country, not alone for food, but for wine. Just now the subject of wine has a peculiar significance for the American vineyardist. The Phylloxera having destroyed in some cases, and materially injured in others, some of the most noted vineyards in Europe, especially in France, real wine has become rare, except in some old cellars, where it has been stored for years. To keep up the supply resort has been had to factitious wines of all descriptions, and adulterations of a very hurtful nature have been practiced to such an extent that the French government has lately interfered to prevent it as far as possible. If the American vineyardist shall now step forward and supply the home market with *pure high class* wines, he will not only be able to retain it, but also find a foreign market for all not wanted at home. The Grape should be regarded as an article of food rather than a luxury, and it is becoming more and more regarded in that light; and there need be no fear, with our rapidly increasing population, that the demand will not always be in advance of the supply. That many portions of the country are suited to the successful culture of the Grape, is abundantly shown by the vineyards already established; in fact, there are but few States in the Union where some one variety of the Grape may not be profitably grown, and even unfavorable localities may often be made to yield a supply for the family, by affording a little protection above ground and proper drainage beneath. For the vineyard, however, the selection of a proper *location* is a matter of the first importance. The soil should be naturally dry, or, if not, it should be made so by artificial means, such as underdraining. It is nothing to the purpose to say that Vines are sometimes found growing wild in moist places, unless you are content to eat Wild Grapes with all their wild flavor and indigestible pulp. Flavor and tenderness are promoted by a well-drained soil as well as by culture. In addition, the grade should be such that no water can remain on the surface at any time of the year. Low

grounds should be avoided as much as possible. They are always colder than uplands, and are subject to cold vapors and fogs, and early and late frosts, all of which more or less promote mildew. A location near large bodies of water, either fresh or salt, is desirable, because of the ameliorating influence of the water. Some of the best vineyards in the country are so located. Hillsides may always be safely chosen. They usually afford a longer season of growth.

Exposure is also an important matter to determine. Some difference of opinion exists on this point. We have no doubt that a southern exposure is to be preferred; and southeast is better than southwest. The exposure, however, must in some cases be determined by the local surroundings, but should be as far to the south as possible. *Shelter*, in this connection, must not be overlooked, for it has an important bearing on the healthy growth of the Vines. It does not receive the attention it ought to. It may be safely said that some well located vineyards have proved generally unremunerative for the want of proper shelter. Many reasons can be given for this, some of which will naturally suggest themselves to a thoughtful man, and not the least important is the protection it affords against the prevalence of mildew. Where shelter is not afforded naturally by woods or trees growing near by, it must be provided by planting trees, and there are none better than Balsam Firs. The Arbor Vitæ will do in a small way, or even a high board fence. Large trees, however, should not be planted so near the Vines as to interfere with their roots. The shelter should be so placed as to protect the Vines from the prevailing cold and high winds, the rest of the vineyard being left open. There are some localities so favored that little or no artificial protection is needed. The owner must, in all cases, use a good judgment.

The best *Soil* for the Grape is undoubtedly a sandy or gravelly loam. A loam is always to be preferred to clay. If necessity compels the use of a clayey soil, it should be thoroughly underdrained, and will be much improved by a liberal addition of sand. Always seek to give the Vine a "dry foot." One of the oldest and best vineyards in the vicinity of New York is planted in a soil (if it may be so called) that was originally a pure sand to the depth of eight feet or more. Clay, muck, and leaf mould were near by and abundant, and the sand was liberally treated to each when the vineyard was made, and a top dressing every few years since. It will thus be seen that a valueless sand may be converted into a profitable vineyard. The preparation of the soil, whatever its nature, should be most thorough before the Vines are planted. A vineyard is planted for a future as well as the present generation; everything connected with it should therefore be done in the most thorough manner, except such things as may afterward be done on the surface, in the way of top-dressings, etc.

There are three methods of preparing the ground for the Vine, viz., *trenching*, *trench plowing*, and *subsoiling*. The first is confined to the garden and small plots of ground. It is done with the spade, and is expensive. It consists, briefly, in spading two spades deep, and reversing the soil, or placing the good top soil at the bottom, and the poor subsoil at the top, which must then be enriched with manures. In many, if not all cases, what is sometimes called bastard trenching will answer all purposes. In this the top and bottom soils are not reversed; the bottom soil is simply stirred up to the depth of the spade. This is a comparatively inexpensive way of putting the ground in very good condition for any kind of plant. Trench plowing requires plows of peculiar make, of which there are few or none in the market, being seldom made except to order. It makes thorough work, but requires strong double teams, and is expensive, except in very light sandy soils, and in such it is not so much needed. It consists in opening a furrow as deep as it can be run, even up to the beam of the plow; another plow follows in the same furrow, and is driven as deep as four oxen can put it. The ground should then be cross-plowed. *Subsoiling* is generally followed, and consists in opening a furrow with a common plow, and following in the same furrow with a subsoil plow, which moves and pulverizes the subsoil without changing its position. It puts the soil in excellent condition, and is inexpensive compared with the permanent good that is done. In all these cases manures or composts must be more or less liberally applied, according to the necessities of each case. The preparation of the soil is undoubtedly one of the most important operations in the establishment of a vineyard, and one of its objects should be to get the soil of a *uniform* texture and richness throughout, but not over-rich. This deep stirring of the soil puts it very much in the condition of a sponge, which enables it to draw moisture from the soil beneath and the atmosphere above, and hold it for the wants of the plants; hence soils that are drained and deeply stirred, keeping the good soil on the surface, are less subject to the evils that accompany and follow a drought than those that are not so treated. It is of the first importance, therefore, that vineyards and orchards at least should be put in the best condition for the reception of the Vines and trees, if the best results are aimed at.

A few words may be added here in regard to *manures*. The Vine is said to be a gross feeder, and in a certain sense this is true; but it may be doubted whether carrion will, at the present day, find much favor among Grape-growers. It must not be forgotten, however, that a Vine under the protection of glass will bear more and grosser feeding than a Vine growing in the open air in our cold and fickle climate. Overfeeding begets soft and spongy wood and feeble buds or eyes, which are always in danger of being winter killed; and what is gained in size of bunch and berry is lost in quality and flavor. Hence it happens that the *best* Grapes at our public exhibitions do not always get the first prize. Gross, unfermented manures are not best for the Grape, on account of the sappy growth they produce. There is perhaps nothing better than a compost made of old barn-yard manure, leaf-mould, broken bones, muck, etc., laid up to rot and frequently turned. Top dressings of lime, ashes, bone dust, etc., can be applied at any time.

A few remarks may be added here in regard to *laying out the vineyard*. There is some difference of opinion as to whether the rows should run east and west or north and south. A brief rule, of general application, may be stated thus: where it is convenient, let the rows so run as to receive the full benefit of the morning sun. This is a matter, however, that must be some-

what modified to meet the circumstances of particular cases; and it is not to be denied that good Grapes have been grown with the rows running in various directions. That the rows are generally found running east and west is owing to the fact that ground sloping to the south is usually selected for a vineyard, and in such cases east and west is the proper way. For obvious reasons, on a hillside the rows should run at right angles with the slope of the hill, or nearly so. Good taste and neatness will naturally suggest that the rows should be straight and even; if, however, as sometimes happens, it becomes necessary to run the rows on curved lines, all the lines should run parallel with each other. It not only looks better, but saves labor in cultivation. A straight line is as easily planted as a crooked one.

There is considerable diversity of opinion among cultivators as to how far apart the rows should be, as well as the distances at which the plants should be put in the rows. This is owing a good deal to the system of training pursued, and still more to the varieties of Grapes planted. A Concord, a Highland, or a Diana will require many times as much room as a Delaware. It will make a difference, too, whether the Vines are grown on stakes or a trellis. Keeping these things in view, the rows may be from six to eight feet apart, and the Vines from four to ten feet apart in the rows. Vines grown on stakes may be planted closer than those grown on a trellis. In determining these matters of distance, the soil, varieties of Grapes, methods of training, etc., should all be taken into consideration. We have gone a little into detail thus far, because the matters treated of form the foundation of a good vineyard, and, if not done at the beginning, can not afterward be reached.

Having prepared the ground for the reception of the Vines, it will now be in order to consider the *kind of plants to purchase*, and *the way to plant them*. By "kind of plants" we do not mean varieties, but the method by which they have been produced. Young plants are generally produced in four ways: 1, from single eyes; 2, from cuttings with a single eye; 3, from cuttings with two eyes, the lower one being rubbed out; 4, from green wood, a practice which is now very generally and very properly abandoned, except occasionally in the case of new and rare varieties grown under glass. The single eye with a shank of yearling wood (No. 2) is generally to be preferred. No. 1 makes a good Vine, but No. 4 should not be bought if anything else can be had. When No. 3 are grown in the open air, the number of eyes is increased to three, and sometimes four, but the plants are not improved by it. In addition to these methods, Vines are also propagated by layers, which are good for special purposes, but not for general planting. In regard to age, we prefer a well-grown Vine one year old, or, if two years old, one that has been cut down and grown to a single cane. It is a great mistake to buy old Vines, and one often committed by novices. A Vine four or five years old, when lifted from the ground, is placed in the condition of a yearling, with this difference, that the younger plant will always make a stronger and better growth. And we may add that we prefer a well-grown pot-vine to any other. The great object is to get a young Vine well furnished with ripe fibrous roots.

Having procured the Vines, the next operation

will be the *planting*. The roots should be placed from five to eight inches beneath the surface, according as the soil is light or heavy, the greater depth being for light, sandy soils. Dig a hole sufficiently deep, and large enough to allow all the roots to be spread out in a natural position, and it is well to elevate the soil a little in the middle of the hole. Have at each hole some good fine soil. Trim up all decayed and injured roots; then spread them out in the hole, and let your assistant sprinkle some of the fine soil over the roots, while you work it in with your hands firmly till the roots are all covered, and the hole may then be filled up with the spade. Next cut the cane down to two or three eyes or buds above the surface, and the planting is completed. A little practice will enable one to do all this rapidly, and do it well. It is better to put a light stake at each Vine while the planting is being done, as the roots will be injured and displaced if done afterward. If the weather should be dry, the roots may be watered as soon as set, and before the hole is filled up, or some litter may be spread on the surface. Do not commit the too common mistake of putting manure in contact with the roots when planting; it does more harm than good. If there should be two layers of roots, gather the upper layer in your hand, and hold it there till the bottom layer has been covered, and then spread it out and cover it. This little extra labor will be well repaid in the future growth of the plant.

In regard to the best time to plant there is some difference of opinion; but, as a rule, we prefer to do it in the fall and cover the Vines. There is usually more time to do it in the fall, and it is consequently better done. The Vines are at this time in better condition for handling, and suffer less from exposure of the roots; and many other reasons might be added. In the spring there is always much work to be done; the Vines are received in a bundle, have, perhaps, heated on the way, the buds have swollen, and in the handling many are rubbed off, and usually those most wanted. The fall, therefore, would seem to be the best time to plant the Vine. If not done in the fall, the Vines should be "heeled in" and covered with litter. In the spring they can be taken out as wanted, and will not, in this way, suffer from long exposure to the air at a time when exposure is decidedly hurtful. From this it may be inferred that it is better to purchase the Vines in the fall, and of this we have no doubt. When Vines are heeled in, it should be in a dry place, where water will not be likely to settle about the roots during the winter. They may be kept in a cool cellar, packed in sand that is simply moist, but not wet.

Whatever system of *training* may be ultimately adopted, only a single cane is grown during the first year. At the time of planting, the cane was cut down to two or three buds, all of which should now be allowed to grow. When they have attained a growth of three or four inches, select the strongest one and break the others off. This shoot must be tied to a stake to prevent its loss by strong winds or accident. The tying must be repeated, as the young cane increases in length, till there is no longer any danger of its loss. After a while little shoots will make their appearance in the axils of the leaves. These little shoots are called *laterals*. These laterals should be allowed to grow till the second leaf has attained about

an inch in diameter, when the lateral should be pinched back to its first leaf. The bud in the axil of this will soon begin to swell, and ere long produce another shoot, which must also be pinched back to its first leaf, which in time will produce another shoot, to be treated in the same way. As cool weather approaches the laterals may be allowed to have their own way. We have spoken of only one lateral from the young cane, but there will be a lateral from the axil of almost every leaf, and these should all be treated as above directed. The cane itself, however, should be allowed to extend itself at pleasure. This pinching really requires but little time, but insures a strong cane with well-developed eyes. In the fall, after the leaves have fallen, the cane should be cut down to three or four eyes, and covered for the winter before the ground freezes hard. This comprises the training for the first year. Culture consists in keeping the ground mellow and free from weeds by the use of the cultivator. Cabbage or a root crop of some kind may be grown between the rows this year, but not Corn or any other plant that grows high.

In the spring of the second year the first thing to be done is to uncover the Vines; but this must not be done too early, especially at the North and in exposed localities. It is better, in such places, to wait till danger from frost is past. Keeping them covered retards growth up to a certain point. If the pruning were not done last fall, it should be done now. We propose the second year to grow two canes. We have three or four buds or eyes to start with. Let them all grow till they are three or four inches long, and then select the two strongest, one on each side, or opposite each other. If the two upper ones should be of about equal size, (as they will generally be the strongest,) select them in preference to the lower ones, and rub the others off. These two canes should be tied up, and the laterals pinched in, precisely as was directed for the single cane during the first year. There may be a number of canes sufficiently strong to bear a single bunch of fruit this year; but, as a rule, it will be better to remove the fruit from most of the canes, and take a larger crop in the third year, unless it be intended to grow the Vines to stakes and a single cane. It happens at times that a Vine here and there will grow too weak during the first year to produce two good canes during the second; and in such cases it is better to grow only one cane during the second year. If everything has gone well we shall have in the fall two strong canes as the beginning of any system of training that may be adopted, and the system must be selected before the next pruning can be properly done.

There are many systems of training of varying degrees of merit; some simple and some complicated; some adapted to the vineyard and others to the garden, or a wall, or the side of a house. Few of these could be made intelligible without much detail and the aid of illustrations, and would require a good deal more room than could be given to the subject in a work like this. We have carried the treatment of the Vine up to a point where any of these methods can be adopted, either for the vineyard or the garden. We will, however, mention a few of these, and refer the reader for details to some work specially devoted to the training of the Vine. To begin with, there is the Double Horizontal Arm System, which is one of the best either for the

vineyard or the garden. It consists of two horizontal arms running in opposite directions on the same level. These are spurred. It is better to reverse these arms when laying them down, as it makes the spurs stronger near the stock. The Single Horizontal Arm is the same in principle, only there is one arm instead of two. The Guyot System consists in growing three canes each year from a low stock. One of these canes is laid down horizontally, and the other two are grown upright. There may be three of these upright canes, but two are better. The horizontal cane is shortened to about four feet, and fruited its whole length. A new horizontal arm is laid down every year. It is a kind of renewal system, and has decided advantages. It is susceptible of several variations, and an improvement consists in making the horizontal arm permanent, and "spurring" it. This system is also a good one for the vineyard. The Upright Stock System is a good one for either the vineyard or the garden, and is a very neat method for covering trellises, walls, arbors, etc. It is adapted to either stakes or wires, and can be made quite ornamental. The Bow System is practiced at the West, and was introduced by the Germans. Stakes are used instead of wires. It consists in growing two canes, one of which is cut to a spur, and the other bent in the form of a bow around a stake. It may be modified by making two bows instead of one. The bows are renewed each year. This system is not practiced as much as it used to be. The Jura Plan is simple, and better than the preceding, and gives more fruit. The Vines are grown to stakes, one to each Vine. The plan consists of a single upright stock two or three feet high, which is double spurred. This plan enables one to plant a Vine here and there about the garden without taking up much room. We mention next the celebrated Thomery System, which takes its name from Thomery in France, where it originated and is found in perfection. It consists in growing Vines with horizontal arms, one above the other in tiers, no Vine having more than two arms. It is a beautiful plan for covering arbors, high walls and trellises, sides of dwellings and barns, etc. Any attempt to describe the methods of its formation without the aid of illustrations would be simply futile. It is a beautiful system of growing the Vine, but is complicated, and demands knowledge, skill, and care. There are many other systems of training, the most of them, however, interesting chiefly to the amateur and experimentalist, but requiring too much time and labor for the vineyard.

The reader must examine the different methods named above, make his selection, and prune his two canes, as we left them, to meet the requirements of the system he adopts; and to do this intelligently he will require the aid of some good book or specialist. We may add, however, that though the native Vine is hardy, it will be better at the North, as a rule, to lay the Vines down, and cover them with a few inches of earth or litter. This laying down should be begun while the Vines are young, as it keeps the stock somewhat pliable. If left till the Vine is old it is apt to crack and be injured, unless the operation is carefully performed. We may also add, that the varieties of Grapes should be selected with reference to the climate and location in which they are to be grown, there being a great difference in varieties in this respect. So many

new kinds of more or less excellence are being introduced every year, that we do not venture to present a list, but refer the reader to catalogues and the current grape literature; and even with these aids a wise selection will be a difficult matter to make. It will always be well to learn which Grapes do well in the neighborhood, or under conditions similar to your own. The perfect Grape is yet to come.

It will not be out of place to add here a caution against overcropping, a mistake quite commonly made by the novice. He quite as often makes another mistake in allowing a cane to fruit before it is strong enough to ripen the berries without injury to its future well-doing. Sometimes he will combine these two mistakes in the same Vine, and ruin it. In the end nothing is lost by patient waiting; rather there is much gain, at least as regards the Grape. While speaking of mistakes we may allude to two others connected with planting, both of which have caused the loss of many Vines. One consists in planting too deep and the other too shallow. If the young Vines are planted too deep, root-action is enfeebled, the Vines make a puny growth, and are either winter killed or die a lingering death. If they are planted too shallow, the frost throws the crown to the surface, and the plant is winter killed: a result that is only too common where the young plants are not covered. This latter mistake may be avoided as follows: when a hole is dug in newly-prepared ground to the proper depth, make the bottom firm by pressure with the foot, but do not pack it hard; then sprinkle on this firmed surface a little fine soil as a bed for the roots to rest on, and finish in the usual way. It must be understood that when it is said that a Vine must be planted at a certain depth, it is meant that the *crown* or neck of the plant must be at that depth. If the ground to be occupied as a vineyard could be prepared a month or so before being planted, so as to allow time for the soil to settle, we should hear of fewer failures in planting. Where Vines are to be planted only two or three feet apart, as in the Thomery system, it is better to open a trench the whole length of the row, to avoid disturbing the roots of the vines already planted by digging holes so close to each other. In planting on a large scale, it is an excellent plan to select the best men to "set" the plants, with earth enough around them to hold the plants in place, while the others follow and finish filling up the holes. On hillsides it is better to make the bottom of the hole very nearly of the slope of the hill; the canes will grow upright, and that is all that is needed; but being placed in the proper position at the time of planting, the roots will be saved the labor of working their way there, as they will be sure to do. If the hillside should be steep, it should be partly terraced, if it can be done. In all these cases something must be left to the judgment of the planter.

In regard to the support for the Vine, some systems of training, such as the Bow and Single Upright Stock, need nothing more than a durable stake, or sometimes two, and there is nothing better than Cedar poles. Trellises of various kinds and materials have been tried, but there is nothing so good as wire stretched on Chestnut or Locust posts, where these can be had. The first cost of a wire trellis is greater than most others, but, on account of its durability and convenience, it is much the cheapest in the end. We know of no other that will make a permanent support for the Vine. Others can be used where wood is plenty, but not because they are cheaper. It is a matter, however, in which many must consult their means.

VIT

The subject of cultivation is one of great importance, and not appreciated by beginners as it should be. They see the native Vine growing wild all around them, and conclude that the Vine in the vineyard will thrive under the same neglect. Many have found this to be an expensive mistake. The vineyard should be cultivated just as any other crop. Take the same care of it as you would of a crop of Corn, and it will give you satisfactory and remunerative crops; otherwise it will not. After the Vines become established the plowing should be shallow. The cultivator should be used for the destruction of weeds and keeping the surface soil mellow. The hoe will be needed to kill the weeds immediately around the plants. There are plows and other implements peculiarly adapted for use in the vineyard, which do the work better than those in common use. In plowing, always do it so as to leave the dead furrow in the middle. This may be done by beginning on the upper side, and throwing the furrow slice to the Vines; then pass to the lower side, and also throw the furrow slice to the Vines; again pass to the upper side, and then to the lower, till the space between the two rows has been plowed, and the dead furrow will come in the middle. At the next plowing reverse this order by beginning in the middle, and the ground will be level.

Where Vines are covered, the pruning should be done in the fall, before the Vines are laid down. In this case, plowing *to* the Vines in the fall, as just described, will help to cover the canes, besides affording additional protection to the roots; but the plowing should be reversed in the spring when this is done. This method combines the advantages of fall plowing and winter covering so well, that it is worthy of general consideration. Top dressings will at times be needed, and are best applied in the fall in connection with this plowing to and from the Vines. Plowing in the vineyard should never be so deep as to injure the roots of the Vines. This is an important matter, and has much to do with the health and fruitfulness of the Vines. On steep hillsides, where a plow cannot be used, recourse is had to a strong two-pronged hoe to loosen the soil when necessary. It may be useful to state here that Vines may be fitted for laying down while they are being trained. Let the trellis or stake be set about a foot from the Vine, and the latter carried to it at an angle of about forty-five degrees, and the Vine can be bent to the ground with comparative ease at the time of covering.

We add a few words about *marketing*, the point where the profit comes in. The Grapes, first of all, should be *ripe* before they are gathered. A shallow basket is best to place the Grapes in when gathered. The bunches should be cut with grape-scissors, and handled so carefully as not to rub off the bloom. They should be taken to the packing house or some place under cover, and assorted and packed for market. All the bruised and imperfect berries should be cut out, and the bunches laid in separate places, as first and second best. The packer then places them in boxes made for the purpose, and these are

put in crates or large boxes for shipment. There should be no sham allowed to enter here. Let the first quality be *all* first quality, and so on. Parties can always be found to pay an extra price for a uniformly good thing; besides, a reputation will be established that is worth more than money. There will be some bunches too small and others too loose for market, besides the bruised berries cut out, etc. These can be consumed at home, or pressed and fermented for vinegar, which will meet with a ready sale. Skill in handling and packing is acquired by practice only, but an expert in these things is a valuable man to have about a place; for his skill goes a great ways in creating a demand for a particular "brand" of Grapes. Boxes holding a pound and a half and five pounds each are much used; but others of a larger size are also used. The customer buys basket and Grapes together. There are various styles of baskets, and it would be hard to say which is best.

Preserving Grapes in the winter has not been, generally, as satisfactory as could be wished; still some kinds are kept in pretty good condition till January. The keeping quality depends upon the composition of the Grape, and the fleshy kinds are found to keep best. Many of our natives will not keep at all beyond their season of ripening. Grapes like the Catawba, Diana, and Iona keep well, the latter being at present our best keeping kind, unless it should be equaled by some of the fleshy varieties recently introduced, which, we are inclined to think, will be the case. The conditions for keeping Grapes are a moderately cool, dry, still air of uniform temperature. Sulphite of lime is successfully employed for absorbing the moisture of fruit rooms, and it is also used in the Grape-room. The French use bottles filled with water and suspended by the neck, in which they place some four or five inches of cane with the bunch attached. It has been tried here with reasonable success, the Grapes being found to keep well for a considerable time. A good plan for keeping a small quantity of Grapes in a cool room is to bend a stout wire (a No. 6 or 7) into a hoop or circle, and provide it with wire hooks, on which suspend the Grapes, stem end down. The bunches should not touch each other. On a larger scale make a frame with four corner posts, and cover the top with movable slats a few inches apart, to which attach hooks, and suspend the bunches as in the preceding plan. The bunches being all in sight, they can be looked over readily, and the decaying berries, if any, removed without much handling. A still better method for a room is to make a box, with drawers deep enough to admit a bunch of Grapes. The box or bureau may be large enough to hold from fifty to two or three hundred pounds of Grapes. The top and the front should be set with hinges, and the bottom of the drawers made of slats. Lay the bunches on the bottom so that they do not touch each other, first having removed all imperfect berries. When filled, raise the lid and prop it up, and open the door; let them remain so till the weather gets cold, and then close the door and the lid. Occasionally, on warm days, the lid and the door may be opened for a while for ventilation. A little frost will do no harm, but freezing may be prevented by throwing a blanket over the fruit bureau. Some kinds of Grapes have been kept in this way nearly all winter. Expensive structures, combining a fruit and an ice house, are in use in some places, which keep large quantities of Apples, Pears, Grapes, etc., in good condition nearly all winter.

There are many things, more or less important, connected with Grape culture, which we must pass over for want of room. A few more words about manures, however, seem to be called for. For the vineyard, barnyard manure should be relied on chiefly, with all the liquid portions carefully preserved. This should be composted with leaves, muck, etc., and the whole frequently turned and worked over before being applied. The prunings should be burned and added to the heap. Manure should be used more or less frequently, according to the nature of the soil; but it should not be applied so often or in such quantities as to produce a succulent growth of wood difficult to ripen in the open air, as there is always danger of its being winter killed. Special manures, such as ashes, bone dust, etc., can be applied to the surface and harrowed in. The best time to do this is in the fall of the year, when rains will dissolve and carry it down within reach of the roots. The vineyard, when fully established, cannot be deeply plowed without doing great damage to the roots of the vines.

We have now gone over the chief and most important operations connected with the establishment of a vineyard of the native Grape. This has necessarily been done in a brief manner, but we trust in such a way as to convey so much knowledge of the subject as will enable the reader to make an intelligent beginning.

Vriesia. Named in honor of *Dr. W. de Vriese*, Professor of Botany at Amsterdam, Holland. *Linn. Hexandria-Monogynia.* Nat. Ord. *Bromeliaceæ.*

This genus is the most remarkable of the Natural Order to which it belongs. There are but few species, the most interesting being *V. speciosa*, a native of Brazil. The beauty of this species consists in the tall spike of brilliant scarlet bracts, from which the flowers are produced. The flowers are yellow, and quite transient, but the rich color of the bracts continues a long time. The plant has the general appearance of the *Billbergia*, and requires the same treatment. Introduced in 1844.

W.

Waahoo, or Burning Bush. See *Euonymus atropurpureus.*

Wachendorfia. Named in honor of *J. E. Wachendorf*, a Dutch botanist. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

A small genus of Cape plants, usually offered in seedsmen's catalogues as bulbs, more from their Ixia-like flowers than the shape of their roots. They all have rhizomes or underground stems, in the scales of which buds, like little

bulbs, form, by which, when detached, some of the species are propagated. The flowers are yellow or violet, scattered on slender scapes about a foot high. The species are nearly evergreen, but not hardy. They should be grown in pots, which should be large for the size of the plant, and allowed a partial rest soon after flowering, which is in midsummer. Introduced in 1770.

Wake Robin. One of the popular names of the *Trillium*, which see.

Walking Fern. See *Lycopodium alopecuroides.*

Wahlenbergia. Named in honor of *Dr. George Wahlenberg*, author of "Flora Lapponica," etc. *Linn. Pentandria-Monogynia.* Nat. Ord. *Campanulaceæ.*

This genus consists of hardy annuals and perennials, with a few tender annuals. They are mostly natives of the Cape of Good Hope. Like the whole of the order, these are very pretty plants. The perennial herbaceous species, one of the best of which is *W. grandiflora*, of which there are white and blue varieties, are very handsome. Seed sown in June will give fine flowering plants the next season. The annuals should be raised in heat in the spring, and planted out when danger from frost is past. Propagated by seed. Introduced in 1816.

Walnut. See *Juglans.*

Wall-flower. See *Cheiranthus.*

Wandering Jew. See *Tradescantia.*

Warratah. See *Telopea.*

Warrea. Named after *E. Warre*, a botanical collector. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A small genus of Orchids from Central and South America, resembling *Maxillaria.* They are of neat habit, and produce their showy flowers freely. *W. cyanea* is remarkable for the deep blue color of its lip, pure blue being rarely found among Orchids. This genus succeeds best in pots in leaf mould and sphagnum moss. They require no rest, and may be grown in a moderately warm house.

Water Arum. See *Calla palustris.*

Water Beech. A popular name for *Carpinus Americana*, which see.

Water Chestnut. See *Trapa.*

Water Chinquapin. See *Nelumbium.*

Water-cress. See *Nasturtium.*

Water Hemlock. See *Cicuta.*

Water Hemp. See *Acnida cannabina.*

Water Horehound. See *Lycopus.*

Water Leaf. A common name for the genus *Hydrophyllum*, which see.

Water Lily. See *Nymphæa odorata.*

Water Locust. One of the species of *Gleditschia*, popularly known as *Honey Locust.* See *Gleditschia.*

Watermelon. See *Cucumis.*

Water Maize. See *Victoria regia.*

Water Milfoil. See *Myriophyllum.*

Water Nymph. One of the popular names of *Nymphæa odorata*, which see.

Water Parsnip. The common name of the genus *Sium*, poisonous aquatic plants.

Water Pennywort. A popular name for aquatic plants belonging to the genus *Hydrocotyle*, which see; and also *Hymenocallis.*

Water Pepper. A common name of the *Polygonum Hydropiper*, which is also called *Smartweed.* See *Hydropiper.*

Water Pimpernel or **Brookweed.** The common name of marshy weeds belonging to the genus *Samolus*, which see.

Water Plantain. See *Alisma plantago.*

Water Purslane. See *Ludwigia palustris.*

Water Rice. See *Zizania.*

Water Shield. A common name of one of the Water Lily family, of the genus *Brasenia*, which see.

Water Soldier. See *Stratiotes.*

Water Violet. *Hottonia inflata*, a white-flowered aquatic perennial, common in the Southern States.

Water-wort. See *Elatine Americana.*

Watsonia. Named in honor of *W. Watson*, a celebrated London apothecary. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A genus of half-hardy bulbs from the Cape of Good Hope, formerly classed with the Gladiolus, to which genus they are closely allied, and to which they bear a close resemblance. They require the protection of a frame during winter, or they may be grown successfully in the greenhouse, where their long spikes of brilliant flowers, scarlet, pink, flesh, white, and purple, make a magnificent appearance. This, like others of its class, receives but little attention in this country, where flowers are so abundant from early spring until winter, that do not require any special care or protection. The beauty of the flower garden in June would be far greater if a little attention were paid to the growing of what is known as Cape Bulbs, the only requirement being a cold frame of any desired size, and the bulbs protected against hard frosts, but more particularly against rains, too much moisture during the season of rest being very destructive to the whole class. The gorgeous flowers that the many species and varieties afford in June amply repay the slight cost and care in producing them. The *Watsonias* are produced freely from offsets. Introduced in 1754.

Wax Myrtle. See *Myrica.*

Wax Palm. See *Ceroxylon.*

Wax-work. The climbing Bitter-Sweet, *Celastrus scandens*, is sometimes called Wax-work, from the appearance of its orange-colored pods. See *Celastrus.*

Wayfaring-Tree. See *Viburnum lantanoides.*

Weigela. Named in honor of *C. E. Weigel*, a botanical writer, and author of "Observ. Botan." in 1772. *Linn. Pentandria-Monogynia.* Nat. Ord. *Caprifoliaceæ.*

This genus of very ornamental hardy deciduous shrubs was introduced from China and Japan in 1843 by Mr. Fortune, to whom we are indebted for many rare and beautiful plants and flowers. It is safe to say there is no shrub more deservedly popular, or one that has been more rapidly disseminated. All the species are ornamental, and should be found in every collection of choice shrubs. *W. rosea* is the original species; its flowers are produced in great profusion in axillary clusters. *W. amabilis* is the largest of the species, is looser and more spreading in habit, with very dark-red flowers. *W. hortensis nivea*, a species introduced from Japan in 1863, is one of the best. It is a vigorous grower of drooping habit; the flowers are pure white, produced in great abundance in June and July, with occasional flowers during the summer. *W. rosea variegata* is a splendid variety, with variegated foliage, green mottled with yellow, contrasting finely with dark-leaved shrubs or evergreens. To make this genus flower freely they should be well pruned in during summer, thus giving the shorter shoots thus formed a

chance to ripen off. All the species are increased by cuttings, which will grow if taken off in autumn and planted in the open border.

Welfia. Named in honor of the last King of Hanover, *Welf* or *Guelph*. *Linn. Dicœcia-Hexandria.* Nat. Ord. *Palmaceæ.*

A small genus of very beautiful Palms, allied to *Geonoma*. The foliage has a peculiar and beautiful bronzy color while unfolding. In the younger stages the leaves are simply bilobed; but as the plants develop they become pinnate. They are natives of Costa Rica and New Grenada. Young plants are obtained from seed.

Welsh Poppy. See *Meconopsis.*

Western Wall-Flower. This name has been applied to the flowers of the *Erysimum asperum*, (Treacle Mustard,) because they are as large as those of the Wall-Flower. See *Erysimum.*

West Indian Cabbage Palm. See *Oreodoxa.*

Whahoo or **Winged Elm.** See *Ulmus alata.*

Wheat. See *Triticum.*

Whin. A popular name of *Genista Anglica*, which see.

White Alder. One of the popular names of the genus *Clethra*, which see.

White Ash. See *Fraxinus.*

White Cedar. A name applied to *Thuja occidentalis* and *Cupressus thyoides*, which see.

White Clover. See *Trifolium repens.*

White Daisy, Ox-Eye Daisy. See *Leucanthemum vulgare.*

White Lettuce, Rattlesnake Root. See *Nabalus albus.*

White Hellebore. See *Veratrum viride.*

White Laurel. See *Magnolia glauca.*

White Oak. See *Quercus.*

White Snake Root. See *Eupatorium ageratoides.*

White Spruce. See *Pinus alba.*

White Thorn, Hawthorn. See *Cratægus.*

White Water Lily. See *Nymphæa.*

White Weed. See *Leucanthemum vulgare.*

Whitlavia. Named in honor of *F. Whitlaw*, an Irish botanist. *Linn. Pentandria-Monogynia.* Nat. Ord. *Hydrophyllaceæ.*

A small genus of hardy annuals from California, of low growth, producing freely handsome white or violet-blue flowers. They are very effective in any department of the flower garden, whether in beds, borders, or ribbons. They require the same treatment as other hardy annuals. Introduced in 1854.

Whortleberry. See *Gaylussacia* and *Vaccinium.*

Wigandia. Named in honor of *John Wigand*, a Bishop of Pomerania. *Linn. Pentandria-Digynia.* Nat. Ord. *Hydroleaceæ.*

A small genus of ornamental-leaved plants from Mexico and Caraccas. The leaves are immense, being three feet long by one and a half in width, richly veined, and the stems covered with crimson hairs. *W. Caracasana* is the most beautiful species, and is a magnificent plant for massing on large lawns, or for planting for single specimens on smaller grounds. Plants of this genus should be grown annually from seed, though the plant is a perennial; old plants lose all their beauty of foliage and get scraggy. Young plants may be had by sowing the seed in the green-house or a hot-bed, and growing them on until the time for planting out. For small gardens none of the plants are desirable, as they require room, light, and air to grow them in perfection. They were introduced in 1837.

Wild Allspice, Fever Bush. Local names of the genus *Lindera*, which see.

Wild Apple, Garland Flowering. See *Pyrus spectabilis.*

Wild Balsam Apple. The fruit of *Echinocystis lobata*, a genus of *Cucurbitaceæ.* See *Echinocystis.*

Wild Bean. See *Phaseolus perennis.*

Wild Bergamot, Horse Mint. See *Monarda fistulosa.*

Wild Chamomile. See *Matricaria.*

Wild Comfrey. See *Cynoglossum Virginicum*, a troublesome, obnoxious weed, common, especially westward.

Wild Elder. See *Aralia hispida*, sometimes called Bristly Sarsaparilla.

Wild Geranium. See *Erodium.*

Wild Ginger. See *Asarum Canadense.*

Wild Guelder Rose. See *Viburnum.*

Wild Hyacinth. See *Camassia.*

Wild Lily of the Valley. See *Smilacina.*

Wild Liquorice. See *Galium lanceolatum.*

Wild Liquorice. See *Abrus.*

Wild Mustard. See *Sinapis.*

Wild Marjoram. See *Origanum.*

Wild Oat Grass. A popular name of the genus *Danthonia*, which see.

Wild Pink. See *Silene Pennsylvanica.*

Wild Potato Vine. See *Ipomœa pandurata.* Sometimes called Man of the Earth, on account of the size and shape of the tubers.

Wild Radish. See *Raphanus raphanistrum.*

Wild Rice. See *Zizania.*

Wild Sarsaparilla. See *Aralia nudicaulis.*

Wild Sensitive Plant. See *Cassia nictitans*, a low growing annual plant, closely resembling the *Sensitive Plant.*

Wild Service Tree. See *Pyrus.*

Willow. See *Salix.*

Willow Herb. See *Epilobium.*

Willow Oak. See *Quercus Phellos.*

Wind Flower. See *Anemone.*

Winter Aconite. See *Eranthis.*

Winter-berry, Black Alder. See *Prinos* and *Ilex.*

Winter Cherry. See *Physalis.*

Winter Cress. (*Barbarea vulgaris.*) This is the common Winter Cress, a plant that is sometimes used as a salad, but rarely cultivated. The species was probably introduced, but is quite common in the North and West.

Wintergreen. See *Gaultheria.*

Wistaria. Named in honor of *Caspar Wistar*, once Professor of Anatomy in the University of Pennsylvania. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

A small genus of hardy deciduous climbers, unquestionably the most ornamental hardy flowering climbers we possess. Their lovely panicles of dark purple, light purple, and pure white flowers, single and double, produced in the most wonderful profusion under almost any circumstances, are altogether without a rival. With one exception, they are all natives of China and Japan. *W. Sinensis* was introduced in 1818, and for many years was grown as a green-house plant, until it was accidentally found to be hardy. In 1844, *W. Sinensis alba*, a variety with pure white flowers, was originated. A variety with double flowers was introduced from Japan, its native country, in 1869, by Francis Parkman, of Boston. The flowers of this species are quite fragrant, and very beautiful. It is still quite rare. There are several other species or varieties from the same countries, all meritorious. *W. frutescens* is a native species, with bluish purple flowers, of which there is also a white variety. Common

from Virginia to Illinois and southward. It is an elegant plant of similar habit, though not quite so productive of flowers, and, unlike the other species, the flowers are developed with the foliage. *W. magnifica* is a very fine late-flowering variety with purple flowers. The Japan Wistarias are much finer than the Chinese. A few years since Mr. Thomas Hogg sent home from Japan a very choice collection, and among them *W. Japonica*, with purple flowers; *W. Japonica alba*, with white flowers; *W. longi-racemosa*, purple, with panicles exceeding thirty inches in length; also a double variety of this, with fragrant flowers. In addition to these, he sent a species with glossy leaves dotted with gold; and another species which grows only three or four feet high, and flowers in July and August. The English Sparrow is very fond of the buds of the Wistaria, and sometimes robs the plant of much of its beauty. All the *Wistarias* are increased readily from seeds or from layers.

Witch Hazel. See *Hamamelis.*

Withe-Rod. See *Viburnum nudum.*

Witsenia. In honor of *M. Witsen*, a Dutch patron of botany. *Linn. Triandria-Monogynia.* Nat. Ord. *Iridaceæ.*

A small genus of green-house herbaceous plants, with showy blue, purple, or yellow flowers, natives of the Cape of Good Hope. They closely resemble the *Iris*, but have small flowers. Propagated by division.

Wolf-berry. The popular name of *Symphoricarpus occidentalis*, which see.

Wolfsbane. See *Aconitum reclinatum.* Known also by the common name of *Monkshood.*

Wood Betony. Common name of *Pedunculuris Canadensis*, which see.

Woodbine. The popular name of the *Lonicera grata*, one of our native Honeysuckles. See *Lonicera.* A name also inappropriately applied to the *Ampelopsis quinquefolia*, the *Virginian Creeper.*

Wood Fern. See *Aspidium.*

Wood Grass. A common name of some of the varieties or species of *Sorghum*, or Broom Corn. See *Sorghum.*

Wood Nettle. See *Laportea Canadensis.*

Woodruff. See *Asperula.*

Wood Rush. See *Luzula.*

Wood Sage. See *Teucrium.*

Woodsia. Named in honor of *Joseph Woods*, a British botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

A small genus of very beautiful low-growing Ferns. Several of the more beautiful species are natives of this country, and are common in the mountains North and West. The species are also found in Europe and Brazil. It is with much difficulty that they can be grown in the green-house. They are increased by division or from spores.

Wood Sorrel. See *Oxalis.*

Wood-Waxen. One of the common names of *Genista tinctoria*, which see.

Woodwardia. Chain Fern. Named in honor of *Thomas Jenkinson Woodward*, an English botanist. *Linn. Cryptogamia-Filices.* Nat. Ord. *Polypodiaceæ.*

Very handsome native and exotic Ferns of easy culture. Some of the species produce little hairy bulbs at the axils of the leaves, which either drop off and strike root in the ground, or vegetate while attached to the parent plant, a feature that is common in many other Ferns.

Woolly Beard Grass. See *Erianthus.*

Worm Grass. See *Spigelia.*

Worm Seed. The seed of *Chenopodium anthelminticum*, which see. The utricle which surrounds the seed contains a volatile oil, which is considered a worm-destroying medicine.

Wormwood. See *Artemisia.*

X.

Xanthorhiza. (Some adopt the orthography *Xanthorrhiza*, following the analogy of *Xanthorræa*, etc.) Yellow Root. From *xanthos*, yellow, and *rhiza*, a root; the roots being of a deep yellow color. *Linn. Pentandria-Polygynia.* Nat. Ord. *Ranunculaceæ.*

X. apifolia, the only known species, is an interesting half-hardy evergreen shrub, with pretty, dark purple flowers in early spring. It is common along the mountains from Florida northward. It is propagated by suckers.

Xanthoxylum. Prickly Ash, Toothache Tree. From *xanthos*, yellow, and *xylon*, wood; the roots are yellow. *Linn. Dioecia-Pentandria.* Nat. Ord. *Xanthoxylaceæ.*

This is a rather extensive genus, having a wide geographical range, with representatives in most of the tropical countries of the world, and in some parts of the temperate regions. The species differ considerably in appearance, some being very large trees, while others are erect or climbing shrubs; and they are often furnished with prickles on their branches and leaf-stalks. The leaves are alternate and compound, either pinnate, (either with or without an odd terminal leaflet,) trifoliate, or rarely reduced to a single leaflet, the leaflets being usually marked with pellucid dots. Their flowers are small, unisexual, and disposed in variously formed axillary or terminal panicles. The ripe fruits split into two pieces, and contain one or two shining black seeds. The fruits of most of the species have an aromatic, pungent taste, like pepper. Those of *X. piperitum*, a Japanese species, are called Japan Pepper; and those of *X. hastile* are the Tej-bul of Northern India, where they are used for intoxicating fish. The genus is represented in the United States by a few species. *X. Americanum*, Northern Prickly Ash, is a prickly shrub with yellowish green flowers, which appear before the leaves. It is remarkable for its pungent qualities. The bark, when chewed, is said to cure the toothache; whence one of its popular names, Toothache Tree. *X. Carolinianum*, the Southern Prickly Ash, is a small tree with very sharp prickles, found on the coast of Virginia and southward.

Xeranthemum. From *xeros*, dry, and *anthemon*,

a flower; alluding to the dry nature of the flower, which retains its form and color for years. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

Hardy annuals of the easiest culture, merely requiring to be sown where they are desired to bloom. The flowers, from their peculiar dry character, may be preserved a very long time after they are cut from the plants, and this circumstance has given rise to the English name Everlasting. The several species are natives of the south of Europe and the Levant. Some of them have been under cultivation more than two hundred years. Sow through April and May in the open border, or in a hot-bed, and transplant in March.

Xerophyllum. Turkey's Beard. From *xeros*, dry, and *phyllon*, a leaf; in reference to the dry grassy leaves. *Linn. Hexandria-Trigynia.* Nat. Ord, *Melanthaceæ.*

A small genus of interesting hardy herbaceous plants, mostly natives. *X. asphodeloides*, one of the most interesting species, is a native of the Pine barrens of New Jersey and southward. It has long, very narrow, bristle-shaped leaves, which form a dense tuft, from which rises a stem bearing a large raceme of showy white flowers in June. They are propagated by seeds or from division, and succeed well in any dry situation.

Xyris. From *xyros*, acute; the leaves terminate in points. *Linn. Triandria-Monogynia.* Nat. Ord. *Xyridaceæ.*

A genus of curious plants, mostly indigenous, though some are natives of tropical Asia and Africa. They are all sedge-like plants, with narrow, radical leaves, and small flower heads terminating the simple scapes, the yellow petals being very fugacious. They are of no special interest.

Y.

Yam. The common name of the large tuberous roots of several species of *Dioscorea*, used as food. See *Dioscorea.*

Yard Grass. A common name for the genus *Eleusine.* It is also known as Crab Grass. See *Eleusine.*

Yarrow. See *Achillea millefolium.*

Yaupon. The name of a tea or drink made from the leaves of the *Ilex Cassine* by the North Carolina Indians.

Yellow-eyed Grass. The common name of the genus *Xyris*, a curious rush-like plant, common in New Jersey and southward. See *Xyris.*

Yellow (False) Jessamine of the Southern States is *Gelsemium sempervirens*, which see.

Yellow Pond Lily. See *Nuphar.*

Yellow Rattle. A common weed. See *Rhinanthus Crista-galli.*

Yellow Root. See *Xanthorhiza.*

Yellow Wood. *Cladrastis tinctoria*, or *Virgilea lutea*, a small and handsome deciduous tree, with showy white flowers drooping from the ends of its branches, common on the rich hillsides from Kentucky southward. See also *Podocarpus.*

Yew. See *Taxus.*

Yucca. Adam's Needle, Spanish Bayonet, Bear Grass. *Yucca* is the name of the plant in Peru. *Linn. Hexandria-Monogynia.* Nat. Ord. *Liliaceæ.*

An extensive genus of evergreen plants, with leaves somewhat like the *Aloe*. *Y. filamentosa*, popularly called Adam's Needle, is common from Virginia southward, and is a beautiful plant for cemetery or lawn decoration. Many of the species are hardy enough to withstand our winters North, and are desirable plants, as well for the flowers as the foliage. The flowers are produced on an erect, branching spike, often six feet high, proceeding from the heart of the plant. It is not uncommon for a single spike to furnish three hundred blossoms, which are creamy white and very showy. The half-hardy or tender species may be grown in pots or tubs, and kept dormant through the winter in a cellar or room free from frost. They grow freely in any soil, preferring a light sandy one. *Y. aloifolia variegata* is one of the most beautiful of our green-house ornamental leaved plants. Its propagation, which is by cuttings, is slow, and hence it is always a scarce and expensive plant. *Y. filamentosa variegata* somewhat resembles it in its young state, and has occasionally been sold for it; but it is far inferior. Most of the herbaceous species of the genus seed freely, and are thus rapidly increased.

Youth and Old Age. A popular name of the *Zinnia*, which see.

Z.

Zamia. From *zamia*, loss; in allusion to the barren appearance of the male flowers. *Linn. Diœcia-Icosandria.* Nat. Ord. *Cycadaceæ.*

An extensive genus of very beautiful and remarkable plants, intermediate between the *Ferns* and *Palms.* They are natives of the West Indies, Central America, the Cape of Good Hope, and Southeastern Africa, where they frequently constitute a conspicuous feature in the vegetation. These extraordinary plants are remarkable for their bony fronds or leaves, which are for the most part armed with spines or sharp angles. The species *Z. horrida* has thorns several inches in length, and as hard as horn. Several of the species are known in cultivation, and are objects of much interest. They require a hot-house, and should be grown in sandy loam. Rapid progress in growth is material to the perfect development of the leaves, and this is only secured by heat and moisture. They may be

propagated by suckers. But these, with all the Cycads, are now largely imported by firms in New York and other large cities, mostly from Central America, and thus plants are obtained at once from their native habitat that would take many years to grow by the slow processes of artificial propagation. When received they are, of course, in a dormant state, without roots or leaves, and should be placed in partially damp moss, in a temperature of 70°, until they begin to grow. They are then potted in small-sized pots, amply drained, in a soil mixed with half its bulk of Sphagnum (moss.)

Zanthoxylum. See *Xanthoxylum.*

Zauschneria. Named in honor of *M. Zauschner*, a German. *Linn. Octandria-Monogynia.* Nat. Ord. *Onagraceæ.*

Z. Californica, the only known species, is a hardy herbaceous plant, native of California. It is of branching habit, and produces large racemes of Fuchsia-like flowers, bright crimson and very showy. It makes a handsome pot plant, and is also very showy in the border. Propagated by division or from seed. Introduced in 1847.

Zea. Maize, Indian Corn. Linnæus named this genus from *zao*, to live; in reference to the nutritive properties of the plants. *Linn. Monœcia-Triandria.* Nat. Ord. *Graminaceæ.*

Indian Corn, *Zea Mays*, is unquestionably an American plant, having been found under cultivation by the Indians on the discovery of the New World. It is said to grow wild in some of the West Indian Islands and in Central and South America. There is only one ascertained species, although numerous varieties have been produced. The many varieties are so distinct in their general habit of growth, size, and shape of the kernel, as to raise the question of their being distinct species, which, however, is not probable. We know of no other plant that so readily adapts itself to circumstances, or one that will so completely change its habit of growth in so short a time. The writer once brought a few ears of Corn from near Quebec, the farthest point north that Corn is known to ripen. The stalks from which the ears were taken were not three feet high, yet each produced two small ears of very hard Corn of excellent quality. This seed was sown in Central New York at the same time and under the same conditions as other Corn, only in a separate field. This crop came to maturity in less than sixty days after planting, ready for the harvest. The next year the best seed of the crop were sown, in confidence of similar results; but, on the contrary, it adapted itself to the climate, and took the same length of time to grow and ripen as the common sorts, and it also grew to as great a height, which was fully two feet higher than it grew the first year. From that fact it is easy to see what great changes may be brought about by cultivation. The varieties known as Sweet or Sugar Corn are best suited for use in the unripe state. They have been greatly improved in the past twenty years by careful selection, and thousands of acres of these kinds are grown for canning, particularly the variety known as Stowell's "Evergreen." *Z. Japonica variegata*, of recent introduction, is beautifully striped white and green, and is unsurpassed as a "Variegated Grass." It requires exactly the same culture as the ordinary Maize; though, being variegated, its growth is weakened, and, under the same conditions, it grows one-third lower than the ordinary green sorts.

It can be used with fine effect for the "back row" or "center" of large beds in massing.

Zebra Grass. See *Eulalia zebrina.*

Zebra Wood. See *Omphalobium.*

Zephyranthes. From *zephyros*, the west wind, and *anthos*, a flower. *Linn. Hexandria-Monogynia.* Nat. Ord. *Amaryllidaceæ.*

A very beautiful genus of hardy and half-hardy bulbous plants, natives of the Southern States, South America, and the West Indies. The flowers are white, pink, and rose-colored, and are produced singly on slender scapes about six inches high. One of the best species is *Z. Atamasco*, generally known as *Amaryllis Atamasco*, and in our cottage gardens as Fairy Lily. This species has beautiful pink flowers, which are produced in great abundance during the entire summer. The bulbs may be planted in the open border early in spring, and, with slight protection during winter, they may remain undisturbed a number of years. The bulbs are about one and a half inches in diameter and two inches long. It is a native of the Southern and Southwestern States. It increases rapidly by offsets. *Z. candida*, a species with pure white flowers and small, rush-like leaves, is a native of Lima and Buenos Ayres. The bulbs are quite small, and grow in large clusters. It is very free flowering, and nearly hardy. Introduced in 1822.

Zichya. In honor of *Countess Molly Zichy*, a noble Austrian lady, fond of botany. *Linn. Diadelphia-Decandria.* Nat. Ord. *Fabaceæ.*

These are handsome green-house climbers, closely related to *Kennedya*, from which they are chiefly distinguished by having their flowers arranged in whorls on the end of an attenuated foot-stalk. They require plenty of water, both at the roots and over the foliage in dry, hot weather, and a support for their flexile stems. The trellis should be as large as may be conveniently attached to a pot, as they extend over a considerable space. In the autumn the branches should be pruned closely back, and the plants kept torpid through the winter. The several species that constitute this genus are natives of Swan River, and were introduced in 1834. Propagated by seeds or cuttings.

Zingiber. Ginger. The Indian name. *Linn. Monandria-Monogynia.* Nat. Ord. *Zingiberaceæ.*

The most important species of this genus is *Z. officinale*, the roots or rhizomes of which furnish the well-known Ginger of commerce. This plant is believed to be a native of Asia. It was naturalized in the West Indies soon after their discovery by the Spaniards; indeed, at so early a period that it is scarcely believed to be an exotic, and is supposed to have been found indigenous on the islands. Acosta relates that a person named Francisco de Mendoza first transplanted it from the East Indies into New Spain, where its cultivation was diligently pursued by the Spanish Americans to a considerable extent, as, from the testimony of the same author, 22,053 cwt. were exported thence to Europe in 1547. This plant is now extensively cultivated in the West Indies, especially in Jamaica, from whence we receive our main supply. There are several varieties of Ginger known in commerce; they are, however, of the same species, as the white and black Ginger simply indicates a different method of preparation. Ginger is also largely grown in the East Indies and Africa, but not of so good a quality as that of the West Indies.

ZIN

Zinnia. Named in honor of *John Godfrey Zinn*, a Professor of Botany at Gottingen. *Linn. Syngenesia-Superflua.* Nat. Ord. *Asteraceæ.*

An extensive genus of hardy annuals, natives of Mexico. When first introduced the Zinnia received but little attention, as the flowers were single, the colors not so bright, nor the plant so effective as the double varieties now under cultivation. The double varieties were first exhibited by Messrs. Vilmorin in Paris in 1861. They originated in India from the common single Mexican varieties, and the seeds were sent to France in 1858. Great improvement has been made within the last ten years in this flower, and our own florists and seed growers have been foremost in this work. The finest strains of this flower are now to be had of the seed growers near New York. Some of the varieties are truly magnificent; the dull, dingy colors have given place to bright scarlet, clear rose, pure white, orange, canary yellow, etc., and the flowers are perfect in shape, and evenly imbricated like a Camellia. Zinnias require but little attention, and will grow well almost anywhere. For perfection of flower, the seed should be sown early in a hot-bed or the green-house, and once or twice pricked out before planting in the open border. Set the plants two feet apart each way, and they will completely cover the ground early in summer. They will commence to flower in June, and remain until killed by frost. The flower lasts a long time, looking cheerful until the seed is quite ripe. The fact of the flowers remaining so long perfect has given the plant one of its common names, "Youth and Old Age."

Zizania. The Greek name of *Darnel.* The modern plants have no relation to the ancient, being natives of America. *Linn. Monœcia-Hexagynia.* Nat. Ord. *Graminaceæ.*

These are native plants. *Z. aquatica* is a large reed-like aquatic plant, and is quite common in marshes and on the margins of waters at the South and West, and was formerly largely collected by the Indians for food. It is a favorite food with wild ducks and other aquatic birds during the fall and winter months, and is a familiar object to sportsmen. A correspondent of the "American Agriculturist," Mr. R. Valentine, of Wisconsin, says he has sold a thousand bushels of this Wild Rice during the past five years. The "Agriculturist" says: "It is the thick growth of this Rice that makes the borders of the Delaware such a favorite resort for gunners in the Reed Bird season, and elsewhere it attracts numerous ducks. Mr. V. says that he has sent the seeds to nearly every State and Territory, to be planted along water courses to attract wild fowl. It is also sown in artificial fish ponds to afford cover and shade for the young fry, a purpose for which it is especially suited. It succeeds best where there is a muddy bottom, and six inches to two feet of water, and care should be taken to place it where its roots will be covered with water at all times."

Zizyphus. Jujube. *Zizouf*, in Arabic, is the name of the *Lotus. Linn. Pentandria-Monogynia.* Nat. Ord. *Rhamnaceæ.*

ZYG

An interesting genus of plants, inhabitants of both hemispheres. They are all very pretty, and deserve to be grown in every collection of plants. The green-house and hot-house species do well with ordinary treatment. The genus is chiefly characterized by having a fleshy, berry-like fruit, containing a one, two, or three-celled stone, with a single flattened seed in each. The species are mostly stiff shrubs, or sometimes small trees with more or less spiny branches, their alternate three-nerved leaves being furnished with one or two thorny stipules. The fruits of several of the species have an agreeable flavor. *Z. vulgaris*, the best known species, when fully developed attains a height of thirty feet. The fruits of this species are commonly eaten in Europe, both in a fresh and dried state, and afford the Jujubes of the shops; or rather used to, for they are now chiefly made up of gum and sugar, and a little tartaric acid, without the Jujubes. The fruits are rather acid when fresh, but when dried they are more agreeable, and are given to allay cough. Perhaps the most useful purpose to which this species can be applied is as a hedge plant. Mr. William Smith, the superintendent of the Botanic Garden at Washington, D. C., has been experimenting with it for upward of ten years, and thinks it has no equal as a hedge plant, and predicts that it is certain to be largely used for that purpose. It is perfectly hardy at Washington, and it is Mr. Smith's opinion that it is likely to prove hardy a great deal farther north. *Z. Jujuba*, an East Indian species, yields an excellent dessert fruit, and is largely cultivated by the Chinese, who recognize a great number of varieties, differing in the shape, color, and size of the fruits. Those of one variety are called Chinese Dates, from their resemblance to that fruit. *Z. Lotus*, an African species, is one of the plants supposed to have yielded the seductive sweet fruits from which the ancient Lotophagi took their name. Another African species, *Z. Baclei*, is the Lotus mentioned by Mungo Park as being used for making into bread, tasting like gingerbread, and also for the preparation of a pleasant beverage. *Z. spina-Christi* is supposed by some to have furnished the crown of thorns put on our Savior's head. Propagated by cuttings or from seed. First introduced in 1640.

Zonal Geranium. See *Pelargonium.*

Zygopetalum. From *zygos*, a yoke, and *petalon*, a petal; in allusion to the adhesion of the segments of the perianth by their bases in the original species. *Linn. Gynandria-Monandria.* Nat. Ord. *Orchidaceæ.*

A genus of very handsome, free-flowering Orchids, natives of South America. They are terrestrial evergreens, and generally flower during the winter or early spring months, which makes them desirable. The pseudo-bulbs should be well elevated in potting, and have plenty of water in the growing season, which is usually from May to September; after which less moisture is required until their season of blooming. They will succeed well in an ordinary green-house. Propagated by division. Introduced in 1828.

GLOSSARY

OF

BOTANICAL AND GENERAL HORTICULTURAL TERMS AND PRACTICES,

WITH

SYNOPSES OF THE NATURAL ORDERS, ETC.

A.—In composition, *a*, privative, is used in Botany as a negative, and signifies without; as, *aphyllous*, without leaves; *acaulis*, without a stem.

Abbreviate.—Used in comparative descriptions to indicate that one part is shorter than another.

Aberrant.—Something which differs from the customary or usual structure, or deviates from the natural or direct way. Also, a group of plants which stands intermediate, as it were, between two other groups; *e. g.*, *Fumariaceæ*, which are by some regarded as an *aberrant* group of *Papaveraceæ*. The term is applied in Natural History to species or genera that deviate from the usual characters of their neighbors.

Abnormal.—Opposed to the usual structure. Thus, stamens standing opposite to petals, and nowhere else, as in Rhamnads, (which see,) are abnormal, it being usual for stamens to be alternate with petals, if equal to them in number. Leaves growing in pairs from the same side of a stem, as in *Atropa Belladonna*, and flower stalks adherent to the midrib of a bract, as in *Tilia*, are also abnormal.

Aboriginal.—Plants which have their origin or spontaneous production in any country. The same as indigenous.

Abortion.—Signifies an imperfect development of any given organ.

Abortive.—Imperfectly developed; as abortive stamens, which consist of a filament only; abortive petals, which are mere bristles or scales.

Abraded.—Rubbed or worn off.

Abrupt.—Suddenly terminating; as, abruptly pinnated, when several pairs of leaflets are formed without any intermediate one at the end.

Absorption.—The function by which the spongioles imbibe the moisture which becomes sap.

Abstergent.—Cleansing, having a cleansing quality.

Acanthaceæ.—An order of monopetalous exogens, belonging to Lindley's Bignonial Alliance, and nearly related to Scrophulariads, (which see.) In tropical regions they are very common, constituting a large part of the herbage. Nevertheless the genus *Acanthus* is found in Greece, and one species inhabits the United States. In a majority of cases *Acanthaceæ* are to be recognized by the presence of large leafy bracts, in the axils of which the flowers are partly concealed, and also by their calyx being composed of deeply imbricated sepals forming a whorl. But their most exact difference from other

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A.—In composition, *a*, privative, is used in Botany as a negative, and signifies without; as, *aphyllous*, without leaves; *acaulis*, without a stem.

Abbreviate.—Used in comparative descriptions to indicate that one part is shorter than another.

Aberrant.—Something which differs from the customary or usual structure, or deviates from the natural or direct way. Also, a group of plants which stands intermediate, as it were, between two other groups; *e. g.*, *Fumariaceæ*, which are by some regarded as an *aberrant* group of *Papaveraceæ*. The term is applied in Natural History to species or genera that deviate from the usual characters of their neighbors.

Abnormal.—Opposed to the usual structure. Thus, stamens standing opposite to petals, and nowhere else, as in Rhamnads, (which see,) are abnormal, it being usual for stamens to be alternate with petals, if equal to them in number. Leaves growing in pairs from the same side of a stem, as in *Atropa Belladonna*, and flower stalks adherent to the midrib of a bract, as in *Tilia*, are also abnormal.

Aboriginal.—Plants which have their origin or spontaneous production in any country. The same as indigenous.

Abortion.—Signifies an imperfect development of any given organ.

Abortive.—Imperfectly developed; as abortive stamens, which consist of a filament only; abortive petals, which are mere bristles or scales.

Abraded.—Rubbed or worn off.

Abrupt.—Suddenly terminating; as, abruptly pinnated, when several pairs of leaflets are formed without any intermediate one at the end.

Absorption.—The function by which the spongioles imbibe the moisture which becomes sap.

Abstergent.—Cleansing, having a cleansing quality.

Acanthaceæ.—An order of monopetalous exogens, belonging to Lindley's Bignonial Alliance, and nearly related to Scrophulariads, (which see.) In tropical regions they are very common, constituting a large part of the herbage. Nevertheless the genus *Acanthus* is found in Greece, and one species inhabits the United States. In a majority of cases *Acanthaceæ* are to be recognized by the presence of large leafy bracts, in the axils of which the flowers are partly concealed, and also by their calyx being composed of deeply imbricated sepals forming a whorl. But their most exact difference from other

orders of the Bignonial Alliance consists in the singular structure of their placenta, which expands into hard processes, which are most commonly hooked. In the form of their embryo they agree with *Bignoniaceæ*. They are of little importance to man. The greater part are mere weeds, but some are plants of great beauty, especially the species of *Justicia, Aphelandra,* and *Ruellia.* For the most part they are mucilaginous and slightly bitter; occasionally the bitterness increases, and they become pectoral medicines; and some are dyers' plants. The genuine Acanths, or plants belonging to genus *Acanthus,* are emollients, as also is *Anisotes trisulcus,* an Egyptian plant. About 1,500 species are mentioned in books.

Acaulis.—Having a very short stem; literally, stemless; but a plant without a stem cannot exist, unless it is a mere vesicle.

Accessory.—Something added to the usual number of organs, or their parts.

Acclimatize.—To accustom a plant to live in the open air without protection, in a country where it is not indigenous. We give the meaning attached to the term, though we question the popular belief. Plants may become acclimatized in the course of ages, but not perceptibly in any one generation. It is true we can temporarily and gradually harden off a plant so that it will stand a great degree of cold, but the product of that plant, whether from cuttings or seeds, will not be hardier than the original individual.

Accrescent.—Growing larger after flowering. The calyx of *Melanorrhœa,* which is small and green when in flower, becomes large and leafy when the fruit is ripe, and is, therefore, accrescent.

Accrete.—Grown together.

Accretion.—The growing of one thing to another.

Accumbent.—Lying against anything; used in opposition to incumbent, or lying upon something. This term is employed in describing the embryo of Crucifers.

Aceraceæ, (*Acera, Acerineæ,* the order of *Maples.*)—A natural order of trees and shrubs inhabiting Europe, the temperate parts of Asia, the north of India, and North America. The order is unknown in Africa and the southern hemisphere. The most important product is the sweet sap of some species, (the Maples,) from which sugar is extracted. They yield a light, useful timber. In the United States large quantities of excellent sugar and syrup are made from the sap of the Maple. The bark of some is astringent, and yields reddish brown and yellow colors. The order only contains three genera, and rather more than fifty species.

Acerose.—Needle-shaped, fine and slender; applied especially to the leaves of the Fir tribe. In the Southern States the leaves of the Pine are known as "Pine Needles."

Acescent.—Sour, tart, acid.

Acetabuliformis.—Saucer shaped.

Acetabulum.—The receptacle of certain Fungals or Fungi.

Acetarious.—Anything belonging to the salad tribe of plants, as Lettuce, etc.

Acetose.—Sour, tart, acid; or something that produces acidity.

Achegones.—Urn-like organs produced on some Acrogens. See *Acrogens.*

Achene.—The same as *Achenium,* which see.

Achenium.—This term is applied, by different authors, to two distinct kinds of fruit: 1. Where the fruit is superior, and, consequently, the pericarp is not invested by the calyx. It is dry, hard, single-

seeded, and indehiscent. This is otherwise termed a nut. 2. Where the pericarp is inferior, and, consequently, invested by the calyx; in other respects resembling the last, but usually not so hard. The seeds of the *Compositæ* are the best examples.

Achlamydeous.—Having neither calyx nor corolla, so that the essential parts of the flower are without a covering. Applied to flowers without any distinct perianth; as in the Willows, where the stamens and pistil are merely subtended by a bract.

Acidotus.—Where the branches or other organs terminate in a spine or hard point.

Acicula.—A bristle. The bristle-like abortive flower of a Grass.

Acicular.—Of a slender form, shaped like a needle.

Aciculated.—Marked by fine impressed lines, as if produced by the point of a needle.

Acies.—The edge of anything. The angles of certain stems.

Acinaciform.—Cimeter-shaped; that is to say, curved, rounded toward the point; thick on the straighter side, thin on the convexity.

Acinarious.—When a stem or branch is covered with little spherical and stalked vesicles looking like grape seeds; as in some sea-weeds.

Acini.—The small stones or seeds in Grapes, Strawberries, etc.

Acinus.—A bunch of fleshy fruits, as of Currants or Grapes, now confined to the berries of such bunches.

Acotyledonous.—Having no cotyledons or seed lobes, as in *Cuscuta.* In systematic botany, applied to spore-bearing plants which do not produce cotyledons, as Ferns; also to spores themselves, which are embryos without cotyledons.

Acotyledons.—A name often applied to *Cryptogamia*, or flowerless plants, in consequence of their reproductive organs or spores, when germinating, having no seed leaves or cotyledons. There are, however, few rules without an exception, and some Lycopods present, when young, something very like cotyledons. Though *Cryptogamia* have no true cotyledons, their spores produce, mostly by cell division, a mass of threads, a leafy expansion, or a solid body, to which the name false cotyledons (pseudo-cotyledons) has been given, and such productions, as the false cotyledons of Mosses for example, have often been considered as distinct plants, belonging to a distinct natural order from the parent plant. Under this name are included all those plants called by Linnæus *Cryptogamia*, because he was unable to discover their organs of fertilization, if they had any. They comprehend Sea-weeds, Fungi, Lichens, Mosses, Ferns, and their allies, which see. It is now known that all are multiplied by a sexual apparatus in structure wholly different from that of Phænogamous plants, but in function the same. In the higher orders, that is to say, in Ferns, Lycopoias, and Horsetails, the plant, properly so called, does not proceed directly from the spore or seed, but from a rudimentary intermediate organ, called prothallium, on which the organs of fertilization are formed, these organs not producing a spore or seed, but the very plant itself.

Acramphibrya.—Plants that grow both at the point and along the sides, as Endogens and Exogens.

Acrobrya.—A term used by Endlicher, synonymous with Acrogens.

Acrocarpi.—A division of Mosses containing those species in which the female fruit

terminates the branches. Unfortunately, even in the same genus, as *Fissidens*, species with lateral and terminal fruit occur, so that the distinction is not without grave exceptions.

Acrogens.—A large and most important division of *Cryptogamia*, distinguished for the most part from *Thallogens*, as Funguses, Sea-weeds, and Lichens, by their herbaceous growth, the presence of leafy appendages, which are frequently furnished with stomates, the different mode of impregnation, and the presence of vascular tissue. A few acrogenous Liverworts have the habits of Lichens, but differ totally in structure. The most important distinction, however, undoubtedly is, that the impregnation takes place somewhat after the manner of Phænogamia, by an impression made upon the contents of the embryonic sac, and not upon the spore itself, as is decidedly the case among Thallogens where the mode of impregnation has been ascertained, as in *Algæ*. In *Characeæ* alone the spore seems to be immediately impregnated, though even in this case it is uncertain whether impregnation does not take place before the spore is perfected. In Mosses, Liverworts, and Ferns, the spore after germination produces at first either a web of threads, a solid mass, or a membranous expansion, (*prothallium.*) In the two former a distinct plant arises from the threads, with frequently symmetrical leaves, and on these plants urn-shaped organs are produced (called *archegones*) analogous to pistils, which contain at their base a cell which, after impregnation, produces the proper fruit. In perennial species a fresh crop of archegones may be produced in two or three successive years, which require a distinct

act of impregnation for the development of the capsules. In Ferns and their allies, on the contrary, the archegones give rise to a new plant, which for one or for many successive years produces a fresh crop of fruit without further impregnation. The result of impregnation in the two cases, then, is quite different. In Mosses the whole plant is, as to functions, a prothallium; in Ferns, merely the membranous expansion immediately produced on the germination of the spores. Further details may be reserved for each successive group. In those species of Fungi, as *Puccinia*, *Podisoma*, etc., where a prothallium is produced, it has the nature of a spore, and germinates in the same manner.

As regards the tissues, it may be observed that the stem of many Acrogens contains distinct vascular tissue. In *Jungermanniæ*, where such tissue is rare elsewhere, it almost universally accompanies the spores. In Mosses, as in *Sphagnum*, there are sometimes distinct spirals in the cells of the leaves. The vascular tissue in most of the higher *Cryptogamia* is scalariform; but in *Isoëtes* and *Equisetum* it is annular, with transitions to short spirals; while in *Selaginella* and *Lycopodium* there is a transition from short spiral and reticulated cells to elongated cells, which may be called spiral vessels. In the stem of *Sphagnum* there is tissue closely resembling the glandular tissue of Conifers. The spiral coats of the spores in *Equisetum* will be noticed hereafter. The impregnating bodies or spermatozoids have always flagelliform appendages, sometimes much more highly developed than in the spermatozoa of animals. The principal divisions of Acrogens are the following:

ACR

1. *Characeæ.* Spores solitary.

2. *Ricciaceæ.* Capsules valveless, without spiral cells or elaters.

3. *Marchantiaceæ.* Capsules dependent, containing elaters.

4. *Jungermanniaceæ.* Capsules erect, containing elaters.

5. *Musci.* Capsules mostly valveless, without elaters.

In these five orders the archegones give rise to the capsule.

6. *Filices.* Capsules mostly with an elastic ring, but sometimes densely crowded and ringless.

7. *Ophioglossaceæ.* Capsules ringless, bivalvate.

8. *Equisetaceæ.* Capsules dependent. Coat of spores spiral.

9. *Marsileaceæ.* Capsules multilocular.

10. *Lycopodiaceæ.* Capsules axillary, unilocular.

In these five orders the spores produce a prothallium bearing archegones, which yield new plants and not capsules. For further details see *Berkeley's Cryptogamic Botany*, p. 421.

Acrospire.—The first leaf that appears when corn sprouts. It is a developed plumule.

Acrosticheæ.—A section of polypodineous Ferns, in which the sori occupy almost or quite the whole fructiferous surface, and are not confined to distinct and determinate points of the veins.

Aculeate.—Furnished with aculei or prickles, as distinguished from spines.

Aculei.—The plural of *Aculeus*, which see.

Aculeus.—A prickle; a conical elevation of the bark or skin of a plant, becoming hard and sharp pointed, as in the Rose. Aculei, or prickles, proceed from the bark; spines or thorns proceed from the wood. The former fall off when ripe; the latter do not.

ADU

Acuminate.—A term applied to leaves or other flat bodies which narrow gradually till they form a long termination. If the narrowing takes place towards the base, it is so stated, as, acuminate at the base; if toward the point, the term is used without qualification.

Acute.—Terminating abruptly in a sharp point.

Acutangular.—Having sharp or acute angles. Sometimes used also where the leaves are divided into many narrow lobes.

Adelphia.—A fraternity; a Linnæan term denoting a collection of stamens. *Monadelphia* means one such collection; *Diadelphia*, two such collections, and so on.

Adelphic.—When the stamens are united by their filaments into one bundle, as in the Mallow; or more, as in *Hypericum*.

Adelphous.—United in pairs or bundles by filaments; as, adelphous stamens.

Adherence.—The complete union or grafting together of parts, which originally, or in their nascent state, were distinct.

Adglutinated.—See *Agglutinated.*

Adiantеæ.—A section of polypodiaceous Ferns, in which the receptacles to which the spore cases are attached, are placed on the under surface of the indusium itself, so that the fructification is, as it were, upside down, and is hence said to be resupinate.

Adnate.—Adhering; growing to anything by the whole surface; when an ovary is united to the side of a calyx it is adnate. Applied to parts of different whorls adherent one to another, and to anthers when they are attached to the filaments by their whole length.

Adpressed.—Brought into contact with anything without adhering.

Adult.—The full-grown of anything; full-grown leaves are adult leaves.

ADV

Adventitious.—A term used to denote some part or organ that is developed in an unusual position; as the leaf-buds that appear on various parts of the surface of the stem, instead of being confined, as is generally the case, to the axils of the leaves. Applied also to roots, etc.; for example, the Ivy throws out *adventitious* roots from along the stems, by which it clings to walls or trees for support.

Adverse.—When one part is placed directly opposite or over against another. Thus of the anther, when the suture is turned towards the center of the flower, which is the most usual case.

Ægaricaceæ.—A class of Fungi resembling the common Mushroom.

Æqualis.—This term signifies equality or similarity in size, and is also used in the sense of uniformity; thus, an equal umbel is an umbel of which the florets are all alike.

Æquilateral.—Equal sided. See *Equilateral.*

Aërial.—Plants or parts of plants which grow entirely above the surface of the earth or water.

Aërocysts.—The air-cells of *Algæ.*

Aërophytes.—Plants growing wholly in the air, such as epiphytal Orchids, many Lichens, Bromeliads, etc., which are commonly called air plants, and the roots of which cling to the bark of trees, etc., and absorb moisture from the atmosphere.

Æruginous.—Having a color like that of *ærugo* or verdigris, as *Curcuma ærugi-nosa.*

Æstuous.—Scorching, glowing, like summer.

Æstival.—Of or belonging to the summer.

Æstivation.—The manner in which the parts of a flower are folded up before the flower expands; applied to the calyx and corolla of a flower when in the bud, before expansion.

AKE

Affinity.—A term used in systematic botany, signifying that one resembles another in the principal part of its structure, as is the case with Crowfoots and Poppyworts. See *Analogy.*

Agglomerated.—Heaped up, or collected closely together into a head or mass; as the stamens in *Anona* and *Magnolia*, or cones on a Scotch Pine, or the flowers of a Scabious.

Agglutinated.—Glued to anything. Generally applied to filaments and anthers. The same as *adglutinated.*

Aggregated.—Several things collected together into one body; as the achenes in the fruit of the Strawberry or Mulberry, or the flowers of the *Cuscuta.* Applied to the inflorescence.

Agrestic.—Pertaining to fields or the country, in opposition to the city; rural. Applied to wild flowers, whether indigenous or naturalized.

Air-cells.—Cavities in the cellular tissue, which are sometimes irregular, but often constructed with great beauty and regularity in the form of hexagonal prisms. They are filled with air, and in aquatics serve the purpose of floating the stem and leaves to the surface of the water. In terrestrial plants, they give some stems, as those of Rushes, a spongy structure.

Air Plants.—A common name for *Aërides.* The name is also applied to Epiphytes, or plants which grow on trees and other elevated objects, not in the earth, and derive their sustenance from atmospheric moisture. They are to be distinguished from terrestrial plants, or those growing in earth, and from parasites, which derive nourishment directly from other plants on which they grow.

Akenium.—See *Achenium.*

Ala.—One of the lateral petals of a papilionaceous flower. Also a membranous expansion of any kind, as that round the seed of a Bignonia, from the summit or side of a seed vessel, or on the angles of a stem. Formerly, the axil, but not now employed in that sense. The word is generally used in the plural, *alæ*.

Alabastrus.—A flower bud.

Alangiaceæ.—A natural order of plants inhabiting tropical Asia. With the exception of the genus *Nyssa*, a native of this country, all are trees or shrubs with inconspicuous flowers, structurally similar to those of certain Myrtles. Their fruit is succulent and eatable, but not agreeable to the taste. The principal genera are *Alangium* and *Nyssa*. Eight or nine species are all that are known.

Alate.—Winged; bordered by a membranous or leafy expansion, as the seeds of the Maple, etc.

Alatus.—Winged. See *Alate*.

Albefactio.—A condition of plants induced by absence of light, commonly called *blanching*, in which little or no chlorophyl is formed, the peculiar secretions are diminished, and the tissues are tender and unnaturally drawn out; and thus some plants, such as Celery and Sea-Kale, which in a state of health are tough, unwholesome, and unfit for food, become palatable and wholesome. If light be restored, the plant may gradually recover its tone; but if it is absent for any great length of time death is sure to ensue. Some succulent plants, and those which have tubers, will sometimes survive the first season, but in general the confinement of a few months at the time of growth is fatal. Flowers, when bleached, as of the flat-leaved *Cacti*, sometimes recover their color when exposed

to light, but Lilacs which are blanched for ornamental purposes remain white, though their leaves acquire a yellowish-green tinge.

Albescent.—Where any color assumes a pale tinge, or has a hoary appearance.

Albumen.—The matter that is interposed between the skin of a seed and the embryo, or the vitellus, if there is one. It is of a farinaceous, oily, or horny consistency, and surrounds the embryo wholly or in part, and affords nourishment to the young plant during the earliest stages of germination. It is the floury part in Corn, Wheat, Rye, and like grains; the oily part in Poppy seeds, etc.; and the fleshy part in the Cocoanut.

Albuminous.—Furnished with albumen when perfectly ripe. A term exclusively applied to seeds.

Alburnitas.—A tendency to remain like alburnum. A disease of trees, when white rings of wood are interposed among heartwood.

Alburnum.—The white and softer part of wood, between the inner bark and heartwood, commonly known as sap-wood; the young wood before it comes to a proper consistence.

Algæ.—A large and important tribe of *Cryptogamia*, by far the greater part of which live either in salt or fresh water, a few only deriving their nourishment from the moisture contained in the surrounding air. Though many of them are confined to particular kinds of rocks, and have something resembling a root, it is not probable that they draw any important part of their nourishment from the substance on which they grow. The higher *Algæ* have a distinct stem, from which arise variously shaped expansions, which often assume the semblance of

leaves; but, though these are often strictly symmetrical, they never follow the spiral arrangement which is so marked in *Phænogamia*, and which exists even among Mosses. In many the stem is quite obliterated, and the whole plant consists of an expanded membrane, consisting of one or more strata of cells, as the case may be. Frequently there is no expansion, and the whole plant, whether solid or fistulose, simple or branched, is everywhere more or less cylindrical. In other cases, again, it consists of a mere string of articulations; while in others the whole is reduced to an adnate crust or a shapeless jelly, or to single cells. In one curious division, the frond, though often much divided, consists of a single cell only, however complicated, filled with endochrome, (which see.) Whatever the color of *Algæ* may be, it appears that they act upon the atmosphere in the same way as *Phænogamia*; that is to say, they absorb carbonic acid and give out oxygen under the influence of light.

Algæ, whatever may be their outward form, or whatever their degree of complication, are cellular plants, in a very few instances only presenting anything like vessels, though the cell-walls themselves have frequently a spiral structure. The spores are often nothing more than the endochromes of cells, whether terminal or chained together like the beads of a necklace, more consolidated than usual, and occasionally broken up into four or more distinct reproductive bodies. There are often two sorts of fruit upon the same or on different fronds, one being regularly tetraspermous, (which see,) the other variable in character, presenting often the appearance of a capsule perforated at the apex. Among the lower *Algæ* the spores

are often furnished with one or more flagelliform processes, or with vibrating ciliæ, by means of which they move from place to place for a greater or less time, as if endowed with spontaneous motion, till they become attached and germinate. In most of the subdivisions sexual differences have been observed; the antheridia, or male organs, containing bodies often closely resembling the spermatozoa of animals. In some of the species fructification does not take place till the threads throw out little processes, by means of which a complete union with one another is established, the endochrome of the joint of one thread passing through their lateral tube and uniting with that of an opposite joint, and then forming a perfect spore. In many of the lower *Algæ*, as, indeed, in some of the higher, reproduction takes place for an indefinite time by repeated subdivision of the original individual. At times, however, the proper fruit makes its appearance, and sometimes in such an anomalous form as to cause much perplexity.

Algæ are related, on the one hand, to Funguses, and on the other to Lichens. Distinctive characters are more easily derived from their respective habits than from differences of structure. The term *Algæ* had formerly a far wider range than at present, and it is now almost entirely confined to aquatic *Cryptogamia*. There is no English word that will comprise the whole. The most convenient, perhaps, is that of Hydrophytes, which, however, does not apply to the aërial species, and is objectionable because there are many plants with a submerged habit which are not *Algæ*. *Algæ* are divided into three great classes, each of which comprises a number of very distinct groups, the more

prominent of which will be noticed in their proper order. These three classes are characterized by the color of their seeds, which correspond for the greater part with the general tint of the plants.

1. *Melanospermeæ*, or olive-spored.
2. *Rhodospermeæ*, or rose-spored.
3. *Chlorospermeæ*, or green-spored.

The first of these comprises the olive-colored species, which, from their size and abundance, are so conspicuous on our shores, or which float in dense masses, sometimes many leagues in extent, on the surface of the ocean. On our own coasts they attain the length occasionally of twenty feet and more, and specimens have been exhibited in New York even larger than this. In the genus *Laminaria* individuals are sometimes large enough to be a load for a man; but this is nothing to the size attained in the southern seas, or even in some parts of the northern hemisphere. Individuals of the genus *Macrocystis* attain the length of a hundred feet or more, and *Lessonia* forms submarine forests, the stems resembling the trunks of trees. Some of the lower species have nothing like leaves, and are reduced to mere articulated threads, or a shapeless mass.

The second class comprises those charming seaweeds, remarkable for their elegance of form, delicacy of texture, and brilliancy of color, which attract the attention of all wanderers along the sea-shore. These are often very abundant, but they seldom attain any considerable size, and some of them are as delicate as Moulds. The third class contains most of the smaller species, in which the frond seldom assumes the form of a membrane, but is more frequently reduced to a mere thread, or even to single articulations. A few

only are conspicuous objects, among which the genus *Caulerpa* is most remarkable, affording, on warm, sandy coasts, an abundant supply of food for turtles. Of the smaller and more obscure species, in which there is often no point of attachment, we have the most exquisite microscopical objects, exhibiting an almost inexhaustible variety of form and outline. In the two latter classes, more especially, many species are so marked by calcareous matter as to present the appearance of corals, with which productions they have accordingly been arranged. A weak solution of hydrochloric acid, however, soon changes the fixed carbonate of lime into soluble chloride of calcium, and the structure and fruit are then unmasked, and found to correspond with those of true *Algæ*. In *Diatomaceæ*, silex instead of lime is imbedded in the substance of the cells. Among the productions which appear upon rocks exposed to the action of the atmosphere, the lower *Algæ* are often the first to make their appearance. Even the cold surface of snow and ice produces the bright red *Alga* known under the name of Red Snow, while allied species appear on darker grounds. These gradually, by their decomposition, afford soil for higher growths.

The larger species of *Algæ* afford a useful though coarse article of food to men and domestic animals, not to mention the numberless tribes which they support in their own element. The Laver is, however, considered by many an object of luxury; though, like Olives, it is not in general relished at first. With use, however, it is esteemed by many a most acceptable condiment. Many of the rose-colored *Algæ* abound in gelatine, and in

consequence they are collected to make a fine kind of glue, or as a substitute for isinglass. Carrageen, or Irish Moss, which consists, in great measure, of common species of *Chondrus*, is a most useful article in cattle feeding, when boiled and mixed with other nutritious matters. Among the Chlorosperms, besides the Laver above mentioned, a species of *Nostoc* is much used as an ingredient in soup by the Chinese; but it seems not to have much to recommend it beyond the quantity of commercial bassorine which it contains. *Durvillæa utilis* is employed for the same purpose in Chili. The siliceous coats of *Diatomaceæ*, of which the substance called Tripoli is entirely composed, form a capital substance for polishing, and the close parallel lines of extreme fineness with which they are frequently grooved, make them very useful in microscopical researches as a test.

The larger *Algæ* were formerly much employed in the manufacture of kelp. More advanced chemical knowledge has, however, entirely suspended the practice, carbonate of soda being now obtained from other sources, to the great detriment of many of the proprietors on the sea-coasts of Scotland and elsewhere. They form also a very valuable manure, and it has been proposed in England, by the Rev. J. M. Berkeley, to manufacture a portable manure from *Algæ* partially dried, and then ground down with conical crushers, the pulpy mass being mixed with peat ashes, and dried in strongly-ventilated sheds. *Algæ*, best known as "Sea-weed," have long been used as manure by farmers along the coast of New England, Long Island, New Jersey, etc., immense quantities being thrown ashore in the fall of the year. It is

generally worked over in the pig-pen, and then composted with the barn-yard manure. It is also used as a covering for Strawberries and other plants during the winter.

Some of the lower *Algæ* approach, as before observed, very near to Moulds, and in consequence many of the latter, when submerged and barren, have been assigned to *Algæ*. Such productions, however, as yeast, and other matters which occur in fermenting bodies, are now pretty well understood, and are referred to a more befitting place in the vegetable kingdom. It is very doubtful if any true *Alga* is parasitic on animals, those which have been supposed to be so, as *Sarcina*, etc., being in all probability *Fungi*. The curious productions which grow on fish and other aquatic animals, as *Leptomitus*, etc., are the only exception, if, indeed, these also should not be excluded. *Algæ* extend to the utmost limits of vegetation, and some of them are found at great depths in the sea. The limits of the distribution of species are not so extensive as in *Fungi*, though some have a very wide range. Many fossil species are described, but the nature of the greater part is obscure.

Algals.—The English term for *Algæ*.

Alismaceæ.—A small group of aquatic plants, with tripetaloid flowers and superior ovaries, each containing only one or two seeds. In some respects, though Endogens, (see *Endogens*,) they much resemble ranunculaceous Exogens, (see *Exogens*,) *Ranunculus Parnassifolius* having altogether the appearance of an *Alisma*. Although for the most part natives of the northern parts of the world, some species of *Sagittaria* and *Damasonium* inhabit the tropics. *Alisma* and *Sagittaria*

have a fleshy rhizome, which is eatable; a species of the latter genus, *S. Sinensis*, is cultivated for food in China, although its herbage is acrid. Various Brazilian *Sagittarias* are very astringent; and their expressed juice is even employed in the preparation of ink. The whole number of species does not exceed fifty, divided among the genera *Alisma*, *Sagittaria*, and *Damasonium*, which see.

Alkalescent.—Having the properties or effects of an alkali.

Alkali.—Any substance which, mingled with acid, produces fermentation.

Alliaceous.—Having the smell of Garlic or Onions.

Alpine.—Strictly speaking, this term refers to the higher part of the Alps, in contradistinction to "mountainous," which designates the middle portion of the higher Alps, or tops of inferior mountains. Plants found in very high elevations are called Alpine Plants.

Alsinaceous.—Applied to a petal having a short but distinct claw, like those of Alsine.

Alternating.—Alternate with anything mentioned.

Alternative.—A term applied to æstivation (which see) when of the pieces of a flower being in two rows, the inner is so covered by the outer that each exterior piece overlaps half of two of the interior row.

Alternate.—Placed on opposite sides of an axis, on a different level, as in alternate leaves. Placed between other bodies on the same or different whorls, as in an umbelliferous plant, where the stamens are alternate with, that is between, the petals.

Alternately-pinnate.—When the leaflets of a pinnate leaf are not exactly opposite each other.

Altingiaceæ, (Liquidambars, Balsamaceæ, Balsamifluæ.)—A solitary genus, *Liquidambar*, represents this Natural Order, of which three species only are known, all trees of some magnitude, producing a fragrant resin called Storax, or resembling that substance. They are nearly related to Plane Trees and Willows, from which they differ in having seed vessels with two distinct cells instead of one, and seeds with broad membranous wings.

Alveolate.—Socketed, honey-combed, as when a flat surface is excavated into conspicuous cavities resembling a honey-comb, as in the receptacles of many Composites.

Amaranthaceæ, (Amaranthi, Polycnemeæ.)—Under this name are included about 500 species of weeds, or, occasionally, showy annual plants, (very seldom undershrubs,) with inconspicuous apetalous flowers, in almost all cases of a scarious or shriveled texture, and most commonly with a white color, now and then pink, orange, or crimson. They are very nearly the same as Chenopods, (see *Chenopods*,) and belong to Lindley's Chenopodal Alliance. They occupy dry, stony, barren situations, or thickets upon the borders of woods, or even salt marshes; are much more frequent within the tropics than beyond them, and are unknown in the coldest regions of the world. Many of the species are used, with the addition of Lemon juice, as pot-herbs, on account of the wholesome, mucilaginous qualities of the leaves. *Gomphrena officinalis* and *G. macrocephala* in Brazil, where they are called Para toda, Perpetua, and Raiz do Padre Salerma, are esteemed useful in all kinds of diseases, especially in cases of intermittent fever, colic, and diarrhœa, and against the bite of serpents. The species of *Gomphrena* and

Amaranthus afford beautiful border plants, and are well known.

Amaryllidaceæ, (Narcissi.)—A large Natural Order, consisting for the most part of bulbous plants, but occasionally forming a tall, cylindrical, woody stem, as in the genus *Agave*. They differ from Irises in having six introrse stamens, and from Liliaceous plants in their ovary being inferior. A few species of *Narcissus* and *Galanthus* are found in the north of Europe and the same parallels. As we proceed south they increase. *Pancratium* appears on the shores of the Mediterranean, and on our own Southern coasts; *Crinum* and *Pancratium* in the West and East Indies; *Hæmanthus* is found for the first time, with some of the latter, on the Gold Coast; *Hippeastras* show themselves in countless numbers in Brazil and across the whole continent of South America; and, finally, at the Cape of Good Hope the maximum of the order is beheld in all the beauty of *Hæmanthus*, *Crinum*, *Clivia*, *Cyrtanthus*, and *Brunsvigia*. A few are found in New Holland, the most remarkable of which is *Doryanthes*. Poisonous properties occur in the viscid juice of the bulbs of *Buphane toxicaria* and *Hippeastra*; those of *Leucojum vernum*, the Snowdrop, and Daffodil and other kinds of *Narcissus*, are emetic. Nevertheless, the *Agave*, or American Aloe, as it is called, has an insipid, sweet juice. Others are detergent, and a few yield a kind of arrow-root. Between 300 and 400 species are known.

Amaryllids.—An English form for *Amaryllidaceæ*. This form of words is in quite common use in England, but only to a very limited extent in this country. It is intended thereby to shorten and popularize the scientific terms, though they do

not seem to be taken to very kindly, or, rather, they are not understood. We have thought it best to make the reader acquainted with some of them, which may best be done by placing before him some familiar examples: *Orchids* is used for *Orchidaceæ*; *Lycopods* for *Lycopodiaceæ*; *Oncids* for *Oncidiums*; *Bromeliads* for *Bromeliaceæ*; *Fungals* for *Fungi*; *Acanthads* for *Acanthaceæ*. Bearing these familiar examples in mind, the reader will seldom be at a loss to know what order of plants is referred to. Some of these words have an uncouth sound.

Ambiparus.—Producing two kinds, as where a bud contains both flowers and leaves.

Amboyna Wood.—The beautifully mottled wood of *Pterospermum Indicum*.

Amenta.—Plural of *amentum*, which see.

Amentaceæ.—Under this name were once comprehended all apetalous, unisexual plants, whose flowers grow in catkins or amenta. Modern botanists find it more convenient to distribute them through several different orders, the chief of which are *Salicaceæ*, *Corylaceæ*, *Betulaceæ*, *Casuarinaceæ*, *Altingiaceæ*, *Myricaceæ*, which see.

Amentum.—A catkin. A deciduous spike of unisexual, apetalous flowers, such as appear in the spring on the Hazel and Willow.

Amorphous.—Where the form is not well-defined or distinct; having no definite form.

Amnios.—The fluid that is produced within the sac which receives the embryo rudiment and engenders it.

Amphibious.—Growing either in water or on dry land.

Amphigastria.—The so-called stipules of Scale Mosses, or *Jungermanniæ*.

AMP

Amphisarca.—A many-seeded, many-celled, superior, indehiscent fruit; woody on the outside, pulpy within.

Amplexicaul.—Stem-clasping; as when the base of the leaf surrounds the stem, as in *Cestrum auriculatum, Lonicera*, etc.

Ampulla.—The metamorphosed, flask-like leaves found on certain aquatics, such as *Utricularia;* not different from *Ascidium.* A flower, etc., that is swollen in the middle like an ampulla or flask.

Ampullaceous.—Having some part, as the monopetalous corolla of certain Heaths, (*Erica,*) swollen out like a flask.

Amylaceous.—Having the properties of starch.

Amylaceous Granules.—Grains of starch.

Amylideæ.—Cells in Algals or *Algæ*, secreting starch.

Amyloid.—A substance analogous to starch, but becoming yellow in water, after having been colored blue by iodine.

Amylum.—Starch; that organized, granular matter of plants which iodine stains violet or blue.

Amyridaceæ, (Terebintaceæ, Burseraceæ, Amyrids.)—With the appearance of Oranges, and sometimes with the dotted leaves of that order, these plants differ in their fruit, forming a shell whose husk eventually splits into valve-like segments. The genera collected under the name of *Amyridaceæ* are by no means perfectly known, and demand a scrupulous revision. The tropics of India, Africa, and America exclusively produce the species. Their resinous juice is of great importance, forming an ingredient of frankincense and other preparations demanding a fragrant combustible matter. See *Amyris, Bursera, Boswellia, Balsamodendron, Icica,* and *Canarium.*

Anacanthous.—Spineless.

ANA

Anacardiaceæ, (Terebintaceæ, Cassuvieæ, Spondiaceæ, Anacards, Terebinths.)—When trees or bushes have a resinous, milky, often caustic juice, dotless leaves, and small, inconspicuous flowers, with an ovary containing a single ovule, suspended at the end of an erect cord, it is pretty certain that they belong to this order, of which more than 400 species are described, inhabiting the tropics both north and south of the equator, but not known to occur in Australia. *Pistacia* and some kinds of *Rhus* inhabit temperate latitudes. Among the products of the order are the Mango fruit, and that called in the West Indies the Hog Plum; the nuts named Pistachios and Cashews, the Black Varnish of Burmah and elsewhere, Mastic, Fustic, etc. These varnishes are extremely acrid, and produce dangerous consequences to persons who use them incautiously. See *Melanorrhœa, Spondias, Rhus, Anacardium, Schinus,* etc.

Analogy.—Resemblance to a thing in form, but not in function, or in function, but not in form. Corresponding with a thing in many points, but differing in more, or in points of more importance. Thus the flowers of *Potentilla* and *Ranunculus* are analogous.

Anandræ.—A name sometimes given to Cryptogamia on the supposition that they have no male organs. See *Asexual Plants.*

Ananthus.—Flowerless.

Anasarca.—A condition of plants analogous to dropsy, though not always attended by extravasation. In extremely wet weather the tissues get gorged with fluid, and as the vegetative powers are generally lowered by the decrease of temperature, the contents of the cells are badly supplied, and, in consequence,

their walls, unconsolidated, become subject to decay, which is soon exhibited in a variety of untoward symptoms. Fruit, in consequence, which has been produced in a wet season is notoriously subject to decay, except compensated by a high state of the hygrometer, a circumstance which may perhaps account for the small quantity of decay which has been experienced in autumnal fruits. In some cases, as in Elms, there is direct extravasation, and then the fluid accumulates, and at length forces its way through the bark, producing permanent ulcers.

Anastomosis.—The union of veins or the angle formed by their union, or of their branches.

Anastomosing.—The uniting of veins, vessels, or nerves.

Anatropal.—When an ovule is turned down upon itself, so that the foramen, or true apex, points to the base, and the chalaza (which see) is at the apex.

Anbury.—A gouty, nodular condition of certain roots, such as Turnips, Cabbages, etc., commonly known as "Club Root," (which see,) arising from the presence of grubs. It must not be confounded with dactylorhiza, which is a very different affection, and entirely independent of the attack of insects.

Anceps.—Two-edged.

Ancipital.—Flattened or compressed; with two edges more or less sharp; as the stems of *Sisyrinchium anceps.*

Ancipitous.—Two-edged, as the stem of an *Iris.*

Ander.—In names formed from the Greek, *ander* is equivalent to the male sex or *stamen;* thus *mon-ander* signifies having one stamen.

Andreæaceæ.—A natural order, or, according to some, a distinct tribe of Mosses.

They do not, however, differ essentially, being distinguished mainly by the longitudinal splitting of the valves at maturity. It consists of but two genera, *Andreæa* and *Acroschisma,* an Antarctic genus, distinguished by the cylindrical capsule splitting into four or eight valves at the apex only. All of the species are of a peculiar dark blue, and the leaves, which are of a close texture, are of a beautiful yellow or golden brown under the microscope.

Andræcium.—The male system of a flower. The stamens taken collectively.

Androgynous.—A term applied to such kinds of inflorescence as consist of both male and female flowers; producing male and female flowers on the same plant, or on the same spike or head.

Androphore.—The tube formed by monadelphous filaments, as in the Mallow.

Androus.—In the composition of words derived from the Greek, *androus* refers to the stamens; thus, *mon-androus* signifies having one stamen, etc.

Anemosis.—The condition known in timber by the name of wind shaken. A trunk which is apparently sound externally, proves, when felled, to have given way in the direction of the concentric layers of which it is composed, so that the connection between them is more or less completely broken. This occurs in many kinds of exogenous timbers, and is no less common in foreign woods than in those of native growth; being, as it is supposed, due to the pressure of extremely violent gales. This, however, is very doubtful, the effect being more probably due to frost or lightning. Wind, however, may be injurious to trees without producing absolute fractures, or separation of parts, by causing too rapid evapo-

ANF

ration, and, in consequence, chilling the tissues to such a degree as to retard development, or induce an unhealthy condition, or temporary sterility.

Anfractuose.—Twisted or sinuous; full of turnings and winding passages. The anthers of Gourds and Cucumbers are anfractuose.

Angiopterideæ.—A section of the marattineous division of marattiaceous Ferns, (see *Marattiaceæ,*) in which the spore-cases are free, and set close together, face to face, in two opposite contiguous lines.

Angiospermia.—The second order of the fourteenth class (*Didynamia*) of the Linnæan System. In modern classification all Exogens are divided into those whose seeds are inclosed in a seed vessel, and those with seeds produced and ripened without the production of a seed-vessel. The former are *Angiospermia,* and constitute the principal part of the species; the latter are *Gymnospermia,* and consist chiefly of Conifers and Cycads. The Oak, Apple, Beech, etc., are *Angiosperms;* while the Pines, Spruces, Hemlock, etc., are *Gymnosperms.* See these terms.

Angiosperms.—The English term for *Angiospermia.*

Angle.—This term is not limited in botany to the inclination of two lines, but is often used to express the inclination of two planes forming an edge, as in "Angular stems," like those of the *Passiflora quadrangularis.*

Anguinea.—Signifying a snake.

Angular.—Composed of or furnished with angles.

Angulo-dentate.—Angularly toothed, or angular and toothed.

Angustifolious.—Where the breadth of a leaf is small when compared to its length, as in *Epilobium angustifolium.*

ANO

Anisomerous.—When the parts of a flower are unequal in number. The same as *Unsymmetrical,* which see.

Aniostaminous.—Where the number of stamens in a whorl is different from the number of parts in the whorl of the perianth. Thus in *Scabiosa,* the corolla is formed by the adhesion of five petals, while there are only four stamens.

Annotinous.—A year old. *Rami annotini* are branches one year old.

Annual.—Applied to a plant, annual signifies that it flowers, produces seed, and dies within the same year in which it first germinates. An annual leaf is one which falls in the autumn, as contra-distinguished from an evergreen leaf, which lasts through the winter.

Annular.—Having the form of a ring, as in certain embryos.

Annulate.—Surrounded by elevated rings or bands, or by scars in that form.

Annulations.—Rings or circles.

Annulus.—A ring, as that which surrounds the spore-case of a Fern, or the peristome (which see) of a Moss; or the membrane remaining round the stipe of an Agaric when the cap has expanded. In the latter case it is a membranous or filamentous veil, inserted on the one hand round the stem, and on the other into the edge of the pileus, (which see,) so as to cover the organs of reproduction.

Anomalous.—Irregular, unusual, contrary to rule; as where a plant is very unlike the great majority of those to which it is most nearly allied; or where some organ is remarkable for the singularity of its shape, which cannot readily be assimilated to any common object for the purpose of comparison; as in the petals of *Delphinium* and *Aconitum.*

Anonymous.—A name occasionally given by

the older botanists to various plants which they could not readily compare with any one that had a name already.

Anterior.—Refers both to time and position. In the latter application those parts are anterior which are placed in front of others, or outwardly, with respect to the axis about which they are arranged.

Anther.—The male part of a flower, containing the fecundating matter; the case which contains the pollen of a plant; the terminal hollow of a stamen.

Antheridia.—The male organs or stamens.

Antheriferous.—Bearing anthers.

Antheriform.—Having the form of anthers.

Antheroid.—Resembling an anther.

Antheromania.—An unnatural development of stamens. This may take place without any detriment to the plant. As the petals are multiplied, the stamens are usually multiplied; but where the stamens are epigynous, (which see,) or upon the ovary, the addition will sometimes materially disturb the normal construction of the flower. In some double flowers the apparent multiplication of the petals is really a multiplication of the stamens; and as such petaloid stamens are generally devoid of anthers, the fertility of the plant may in consequence be affected.

Anthocarpous.—Composed of flowers and fruit blended into a solid mass, as in the Pineapple.

Anthoceridæ, (Anthoceros.)—A small natural order and genus of Liverworts, distinguished by the capsule, which is threaded by a linear columella, (which see,) bursting longitudinally on one or both sides, and by the fronds being without the pores which are so conspicuous in *Marchantiaceæ*. It consists of about three genera only, which occur in different

parts of the world, one of which, *Carpobolus*, is remarkable for the absence of the spiral vessels or elaters in the capsule, that are so characteristic of the tribe. Two species, *Anthoceros lævis* and *A. punctatus*, occur on the ground in England, principally in the eastern counties. No species bears anything like the true leaves of the higher *Jungermanniæ*.

Anthocyane.—The blue coloring matter of plants.

Anthodium.—The head of flowers or capitulum of Composites.

Antholysis.—The retrograde metamorphosis of a flower; as when carpels change to stamens, stamens to petals, petals to sepals, and sepals to leaves, more or less completely.

Anthoptosis.—Most flowers are mere temporary organs, which, when they have performed their functions, are destined to fall. In many cases, however, the flowers fall before impregnation has taken place, or shortly after, involving with them the pistil, and so inducing sterility. This may arise from various causes, as excess or want of moisture, but more frequently from late frosts or cold winds. In many instances the fall of the flower naturally follows impregnation, and cannot be regarded as a disease; indeed, the time of its fall seems to depend upon the process of fertilization, for even in cases where the flowers naturally fade very rapidly, their duration may be prolonged by preventing the access of pollen to the style.

Anthoxanthine.—The yellow coloring matter of plants.

Antical.—Placed in front of a flower, the front being regarded as the part most remote from the axis. Thus, the lip of an *Orchis* is antical.

Antitropal.—Same as *Orthotropal*, which see.

ANT

Ants.—See *Insects.*

Apertus.—Open, expanded.

Apetalous.—Having no petals. Also extended to plants that have neither calyx nor corolla.

Apex.—The summit; generally applied to anything terminating in a point.

Aphis.—See *Insects.*

Aphthous.—Resembling something covered with little ulcers.

Aphyllæ.—A name applied to that portion of cryptogamic plants comprehended under the term Thallogens, (which see,) in consequence of the greater part of them being destitute of such modifications of leaves as occur in Mosses, Ferns, etc. Some Sea-weeds, or *Algæ*, indeed, have leaf-like organs, but these differ in many respects from leaves, and are mere expansions of the common stem.

Aphyllous.—Destitute of leaves. It sometimes signifies their partial or imperfect production.

Apiaceæ, (*Umbellifera, Umbellifers.*)—Under this name is collected a very large number of plants, inhabiting for the most part, in the northern regions of the northern hemisphere, woods, bogs, marshes, and dry places. As we approach the equator they become less and less known, and in the southern hemisphere are comparatively rare. They all have a double (didymous) inferior ovary, separating, when ripe, into two similar parts, commonly called seeds, surmounted by a superior calyx, which is generally scarcely, and often not at all, observable; five separate petals; five intervening epigynous stamens; and two styles proceeding from what is not very correctly termed a double epigynous disk. Hemlock, Carrot, Parsley, and Parsnip are familiar examples.

API

Although the order numbers at least 1,500 species, divided among nearly 300 genera, not a tree is known among them, a very few only attaining the condition of woody bushes. Many are important as producing articles of food; many are poisons; most are merely unimportant weeds; a few, like *Astrantia*, are furnished with gay colors, and thus become objects of decoration. One of them, *Bolax Glebaria*, forms huge tussocks in the Falkland Islands, resembling hay-cocks. Of the harmless species, in which, with a little aroma, there is no inconsiderable quantity of acrid watery matter or gum-resinous secretion, must be more particularly named Celery, Fennel, Samphire, Parsley, and the roots of the Carrot, Parsnip, and Skirret, (*Sium Sisarum.*) The root *Eryngium campestre* and *E. maritimum*, commonly called Eryngo, is sweet, aromatic, and tonic. The aromatic roots of *Meum athamanticum* and *M. Mutellina* form an ingredient in Venice treacle. Angelica Root, belonging to *Archangelica officinalis*, is fragrant, sweet when first tasted, but leaving a glowing heat in the mouth. Others are gum-resinous, as the species of *Ferula*, yielding Asafœtida, the fetid odor of which is supposed to be owing to sulphur in combination with a peculiar essential oil.

Of aromatic and carminative fruits, the most celebrated are Anise, (*Pimpinella Anisum,*) Dill, (*Anethum graveolens,*) Caraway, (*Carum carui,*) and Coriander, (*Coriandrum sativum.*) Besides these, great numbers of less note are also employed for the same reason, the chief of which are the Ajwains or Ajowains of India, (species of *Ptychotis,*) Honeywort, (*Sison Amomum,*) whose fruits smell of bugs, and Cummin, (*Cuminum Cyminum,*)

now only used in veterinary practice. Among poisons, Hemlock (*Conium maculatum*) holds the first place. *Anthriscus vulgaris* and *A. sylvestris* are not so dangerous. *Æthusa Cynapium, Œnanthe crocata, Œ. Phellandrium, Cicuta maculata,* and *C. virosa* are other fatal species.

Apical.—At or relating to the apex.

Apiculate.—Terminating abruptly in a little point. See *Apiculus.*

Apiculatum.—The flowers resembling a bee.

Apiculus.—A small point. This term is generally used when the midrib projects beyond the leaf, forming a little point, or when a small point is very suddenly and abruptly formed.

Apifera.—Like a bee.

Apocarpus.—Having their carpels, or at least their styles, disunited.

Apocynaceæ, (Contortæ, Vinceæ, Apocyneæ, Dogbanes.)—A natural order of corolliflora Exogens, with a superior ovary, free epipetalous stamens, a pulley-shaped (trochlear) stigma, and unequal-sided lobes of the corolla, on which last account Linnæus called them contorted or twisted-flowered plants, the corolla having some resemblance to a Catharine-wheel firework in motion. Most of the species inhabit tropical countries; the northern forms are the *Vinca* or Periwinkle, *Nerium* or Oleander, and a few more. In general the species form a poisonous, acrid, milky secretion, which renders them dangerous; but others are mild enough in their action to be useful in medicine, and in a few cases the milk is bland enough to form a palatable beverage. Some yield the gum-elastic Caoutchouc, (see *Vahea;*) while some *Hancornias* and *Carissas* produce an eatable, and, as travelers say, a pleasant fruit. See *Tanghinia, Tabernæmontana, Hancornia,* etc. The commoner

forms in cultivation are those of *Allamanda, Parsonsia, Vinca,* and *Tabernæmontana.* About 600 species are known, distributed through about 100 genera.

Apophysis.—A name given to a swelling, often hollow, or of extremely loose texture, at the base of the capsules in several Mosses. It is developed extremely in the natural order *Splachnei,* where it often exceeds in size the true capsule. It attains its maximum in *Splachnum luteum* and *S. rubrum,* where it is a most conspicuous object, hanging down like an umbrella or the vesicle of *Ascophora.* In *Œdipodium* almost the whole of the stem consists of apophysis, which is confluent at once with it and the capsule.

Apostasiaceæ.—This is a very small group, bordering on the limits of the vast Orchidaceous order, from which it differs mainly in its stamens not being gynandrous, but distinct from each other and from the style. It stands near the genus *Cypripedium,* some of the reputed species of which, now called *Selenipedium,* have a three-celled ovary. The flowers of all the known species are small and inconspicuous, while the leaves are strongly marked by stout parallel, larger veins, as in *Curculigo,* or any similar plant.

Apostaxis.—Unusual discharge of the juices of plants. This may arise merely from an extreme abundance of fluid, which is in consequence discharged, as in Indian Shot and the Vine, from the point or serrated top of the leaves. If, however, it is elaborated sap which flows out, either from injury or weakness of the tissues, the effect may be injurious. And this is exactly the case in what is called gumming; a condition which may be induced artificially by allowing water to drop constantly over a branch. This always pro-

ceeds from injured or diseased tissues, and is with difficulty arrested when once set up, and, if so, is the certain forerunner of fatal canker. In some cases, as in the Tragacanth Plant, the gum is organized, and is derived apparently from the medullary rays. In Conifers a flow of resin is often attended with the same fatal results as gumming in Plums and other allied plants. In this case it seems to arise generally from root confinement and a consequent check of circulation.

Apothecia.—The shields of Lichens; firm, horny disks arising from a thallus, etc., containing spores.

Apothecium.—The organ of fructification peculiar to Lichens, which contains their sporules, and is frequently cup-shaped.

Appendages.—Leaves and all their modifications are appendages of the axis. Hairs, prickles, etc., are appendages of the part which bears them.

Appendant.—Hanging, approaching pendulous.

Appendiculate, Appendiculated.—Furnished with appendages.

Appense.—Being hung up, as a hat upon a pin; an approach to pendulous.

Appleworts.—An English name proposed for the order *Pomaceæ.*

Appressed.—Placed close upon something else; when hairs lie flat upon the surface of a plant they are said to be appressed. Synonymous with adpressed, which see.

Approximate.—Parts which are close together, but not united.

Aptandraceæ.—Out of the genus *Aptandra,* Mr. Miers has proposed to form a natural order bearing this name. Only one species is known, a tree with alternate leaves and minute flowers, a native of the banks of the River Amazon. It is usually referred to Humiriads. Its great feature is having anthers opening by reflexed valves, as in *Lauraceæ.*

Apterous.—Without the membranous margins which botanists call wings.

Aquatic.—Applied to all plants which grow in the water, whether they are entirely submerged, float on its surface, or, having the roots fixed in the soil, raise their leaves and flowers above the water, as the Water Lilies, (*Nymphæa.*)

Aquifoliaceæ, (*Ilicineæ, Hollyworts.*)—The common Holly Tree is the type of a small natural order of shrubs and trees, with rotate monopetalous flowers, a definite number of epipetalous stamens, and a fleshy fruit. The species may be said to possess in general emetic qualities, variously modified in various instances. Birdlime is obtained from the bark of the common Holly, and the beautiful white wood is much esteemed by cabinet-makers for inlaying. A decoction of *Ilex vomitoria,* called Black Drink, was used by the Creek Indians at the opening of their councils, and it acts as a mild emetic. But the most celebrated product of the order is Maté, or Paraguay Tea, the dried leaves of *Ilex Paraguayensis.* The old genus *Aquifolium,* now *Ilex,* is the type of this natural order.

Aquilariaceæ, (*Aquilariads.*)—These consist of fragrant tropical Asiatic trees, with small, apetalous flowers, resembling those of a *Rhamnus.* Only ten species are known, of which the most important is the genus *Aquilaria.*

Araceæ, (*Aroideæ, Arads.*)—These are incomplete plants of the Endogenous class, with numerous naked unisexual flowers, closely packed upon a spadix, shielded when young by the hooded leaf called a spathe, as is seen in the common Wake-robin, (*Arum maculatum.*) They are com-

mon in tropical countries, but rare in those with a cold or temperate climate. Botanists have mixed them with Orontiads, (*Orontiaceæ*,) from which their hermaphrodite flowers distinguish them. Most have tuberous roots, (corms,) but some acquire the stature of little trees, the most interesting of which is the Dumb Cane, a species of the genus *Dieffenbachia*. The acrid, poisonous qualities which have given rise to the latter name, are characteristic of the order. Nevertheless, the whole contain starch in such abundance, that it may be separated in the form of Arrow-root, or used as food in the combined state, only, however, after very careful washing, to remove the acrid juices. Thus, the common spotted *Arum* was eaten in time of scarcity, and yields a kind of Arrow-root, and the *Colocasias* are grown everywhere in hot countries as common field crops. See all these names.

One of the peculiarities of the order is to extend the end of the spadix into a soft, cellular, enlarged process, which is the growing point of the flower branch, and analogous to the succulent receptacle of the Strawberry, the spongy excrescence called the Oak Apple, and even the stiff, hard spine of the *Gleditschia*. Scarcely more than 200 species are known. The *Caladium*, *Richardia Æthiopica*, (Calla,) *Arum*, *Colocasia*, etc., are examples of this order.

Arachnoid.—Resembling cobwebs in appearance; composed of soft downy hairs or fibers; resembling the web of the gossamer spider; as the pubescence on the leaves of *Sempervivum arachnoideum*, *Calceolaria arachnoidea*, etc.

Arachnoideus.—Covered with capillary filaments.

Arads.—An English name for the *Araceæ*, which see.

Araliaceæ, (*Araliads*, *Ivyworts.*)—These form a small natural order closely approaching Umbellifers, from which they in reality differ in little, except in their fruit always consisting of more carpels than two, and having no double epigynous disk. They are also more generally arborescent, many of them being trees or large shrubs, and very few herbs. Several are conspicuous for their broad, noble foliage. The species are found in the tropical and sub-tropical regions of the world, and in some of the coldest, as in Canada, the northwest coast of America, and Japan. *Aralia polaris* even occurs in Lord Auckland's Islands, in 50½° south latitude. They have aromatic qualities, usually slight, but occasionally intense. One of them forms a soft, white, spongy pith, which, when cut into thin plates and flattened, becomes the famous so-called Rice Paper of the Chinese. *Hedera*, *Aralia*, *Panax*, *Gunnera*, *Adoxa*, etc., are examples of this order.

Araniferous.—Resembling a spider.

Ara-root.—The same as Arrow-root, which see.

Arboreous.—Being a tree, as distinguished from frutescent or shrubby.

Arborescent.—Having a tendency to become a tree.

Arbuscula.—A small shrub with the appearance of a tree, like many Heaths.

Archegone.—A term applied to the long-necked, cellular sacs which occur in the higher, or acrogenous *Cryptogamia*, and which are analogous to the pistils of Phænogams, (which see.) They contain at the base of their cavity a cell which is analogous to the embryo sac of *Phænogamia*, and which is impregnated by the agency

of spermatozoids. From this cell, either the young plant, as in Ferns, or the capsule, as in Mosses, is formed by means of repeated cell division.

Archil or *Orchil.*—A coloring matter obtained from various species of Lichens, especially *Roccella tinctoria.*

Arcuate, Arcuated.—Curved, or bent like a bow.

Ardens.—Bright, glowing, burnished.

Ardisiads.—An English name for the order *Myrsinaceæ.*

Arenaria.—Growing among sand.

Areolæ.—Little spaces, or areas on the surface of a thing; the surface of crustaceous Lichens is often cracked in every direction; the spaces between the cracks are the areolæ.

Areolate, Areolated.—Divided off into distinct spaces, usually more or less angular. The skin of a plant is areolate.

Argenteus.—White, with a tinge of gray, and glittering with somewhat of a metallic luster, as the silky hair on the leaves of *Evolvulus argenteus.*

Arid.—Exhausted of moisture. This term is used to denote a dry atmosphere in plant houses or under glass.

Arietinum.—Resembling a ram's head.

Aril, Arillus.—An expansion of the funicular chord; a body which rises up from the placenta and encompasses the seed, like the Mace in Nutmeg, and the red sac in *Euonymus.*

Arillode.—A false aril; a coating of the seed proceeding from its own surface, and not from the placenta.

Arillate.—Having that peculiar appendage called the arillus, which see.

Arista.—The awn or beard of Wheat or Barley, or any such like process.

Aristate, Aristated.—Bearded, as the glumes of Barley, etc.

Aristolochiaceæ, (Aristolochiæ, Asarineæ, Pistolochinæ, Birthworts.)—In the tropical parts of both hemispheres, and occasionally beyond those limits, occurs a race of plants with singularly inflated, irregular flowers, consisting of a calyx only, of a dull, dingy color, varying from yellow to shades of chocolate, purple, or brown, and often emitting an offensive odor. A hot summer appears to be one condition of their existence, with a few exceptions, the most striking of which are *Asarums,* little stemless plants, wild in Europe and North America, and the *Aristolochia Clematitis,* which has become, as it were, naturalized in England. The wood of these plants, when they have any, consists of parallel plates, held closely together by soft, medullary processes. The ovary is inferior, with many ovules, and for the most part consist of six cells, the number three being, as in Endogens, characteristic of the floral apparatus of the order. In medicine these plants are slightly aromatic, stimulating tonics, useful in the latter stages of low fever; the taste is bitter and acrid; the odor strong and disagreeable. The principal genera are *Aristolochia* and *Asarum,* which see.

Arma.—Such appendages as prickles, thorns, etc., which serve as defenses to protect plants against the attacks of animals.

Armature, Arms.—Any kind of defense, consisting of spines, prickles, etc.

Armeniacus.—Apricot-colored; also, native of Armenia.

Armillaris.—Like a bracelet.

Aroma.—The spicy quality of flowers, fruits, foliage, etc.

Arrhosus.—Gnawed, bitten.

Articulate, Articulated.—Jointed, having joints.

ART

Articulations.—The places where one thing is joined with another.

Artocarpaceæ, (*Artocarpeæ*, *Artocarpads.*)—A group of apetalous trees, belonging to Lindley's Urtical Alliance, not unlike the Plane Trees of Europe; but for the most part inhabiting the tropics. They abound in a milky juice, and have, for the most part, their female flowers collected into fleshy masses or heads. Moreover, they have great sheathing, convolute stipules, like those of a Fig Tree. The more important genera are *Artocarpus* and *Antiaris.*

Artocarpads.—The English term for *Artocarpaceæ.*

Asafœtida.—A drug formed of the concreted milky juice of *Narthex*, and of various species of *Ferula.*

Asarineæ.—A synonym of *Aristolochiaceæ.*

Ascending, Ascendent.—Directed upward, as the stem, which is the ascending axis; rising upward with a curve from the horizontal to a vertical position, as many stems.

Asci.—The name of the fruit-bearing cells in the important division of *Fungi* called *Ascomycetes.* These may be thread-shaped, cylindrical like little sausages, clavate, or sub-globose. In the latter case they are mostly few in number, and are occasionally reduced to one in each cyst or *perithecium*, as in *Sphærotheca*, to which genus belongs the felted Mildew of Rose-leaves and the Hop Mildew. This is the species known as the Fungus of the Cutting Bench. See "Propagation of Plants by Cuttings."

Ascigerous.—Having asci, which see.

Ascidium.—A pitcher; various modifications of leaves containing or capable of holding fluid, such as are found in *Sarracenia, Nepenthes, Cephalotus*, or even *Utricularia.*

ASC

Asclepiadaceæ, (*Asclepiadeæ, Asclepiads, Apocyneæ* in part.)—Among monopetalous Exogens with a superior ovary, the very large natural order which bears this name is known by its pollen being collected in the form of waxy masses or bags, derived from the separable inner lining of the anther cells, and by the fruit consisting most commonly of a pair of divaricating follicles. The species differ from Apocynaceæ, or Dogbanes, in the peculiar structure of the staminal apparatus, the stamens in the latter order being distinct, the pollen powdery, the stigma not particularly dilated, and all these parts distinct the one from the other. But in Asclepiads the whole of the sexual apparatus is consolidated into a single body, the center of which is occupied by a broad, disk-like stigma, and the grains of pollen cohere in the shape of waxy bodies, which become attached finally to the five corners of this stigma, to which they adhere by the intervention of peculiar glands.

Fully 1,000 species are known, for the most part inhabiting the tropics of the Old and New Worlds. Two genera only are found in northern latitudes, one of which, *Asclepias*, has many species, and is confined apparently to North America; the other, *Cynanchum*, is remarkable for extending from 59° north latitude to 32° south latitude. *A. Stapelia* is found in Sicily. They vary extremely in appearance, many being leafless succulents, like *Stapelia;* others (and they are more numerous) consisting of twiners like *Hoya;* while another portion consists of upright herbaceous plants, such as *Asclepias* and *Vincetoxicum;* a few are tropical trees. As a general rule the species are poisonous; an acrid milk which

pervades all their parts being eminently emetic and purgative.

The genera *Stapelia, Hoya, Asclepias, Vincetoxicum, Ceropegia, Periploca,* are good examples of the order. The manner in which the ovules of these plants are fertilized by the pollen is among the most curious phenomena known in plants. Instead of the grains of pollen falling on a viscid stigmatic surface, and then producing tubes of impregnation, the tubes are formed inside the pollen bags, whence they ultimately find their way by a spontaneous emission, and reach the surface of the stigma without being projected upon it, conducted by some inherent vital power. For a full account of this extraordinary fact, see Lindley's *Introduction to Botany,* fourth edition.

Asclepiadeæ.—A synonym of *Asclepiadaceæ.*

Asclepiads.—The English name for *Asclepiadaceæ.*

Asexual.—This term was once applied to *Cryptogamiæ,* but since the discoveries which have been made during the last thirty years, it is no more applicable to them than to *Phænogamiæ.* Sexual organs have now been discovered in every branch of *Cryptogamiæ.* Among *Fungi* alone they are still obscure in several divisions; but if such genera as *Leptomitus* really belong to *Fungi,* of which there is little doubt, there is even among them the same type as among the higher *Cryptogamiæ.* It is, moreover, singular that the impregnation of *Cryptogamiæ* comes nearer the type of that in animals than in *Phænogamiæ.* Their spermatozoids resemble closely those of animals, and, indeed, are often more complicated. Among *Fungi* alone, and Lichens, which nearly approach *Fungi,* they are mere cells, without motion, analogous to pollen grains, though they do not germinate like them, at least so far as has been observed at present.

Aspect.—This term is used to denote the position of garden or grounds. When choice can be made, it should be towards the south or southeast, and if it has a gentle slope to the south or southeast, say one foot in a hundred, so much the better; and if well sheltered by hills or woods from the northwest, many plants can be safely grown that would not be sufficiently hardy without that shelter. Such an aspect also permits operations to be begun earlier in spring, and will longer resist the fall frosts, than if such shelter was not present. Such aspect is equally important for all glass structures.

Asperifoliæ.—An old name for what are now called Borageworts, or *Boraginaceæ,* derived from the remarkable roughness of the leaves of the greater part of the species.

Asphodeleæ.—An order of herbaceous plants now merged in *Liliaceæ,* from which they were found to differ in no essential characters; a group of monocotyledons, which may be considered as a distinct natural order, or referred to Liliaceæ as a subordinate tribe.

Aspidieæ.—A section of polypodineous Ferns, in which the sori are punctiform or dot-like, and covered either by reniform or peltate indusia. See *Indusia.*

Aspleniеæ.—A section of polypodineous Ferns, in which the simple linear or oblong sori are parallel with the veins, and oblique to the midrib, produced on one side of the veins, and covered by indusia of the same form. The modern group, *Aspleniеæ,* is nearly synonymous with the genus *Asplenium* of the older and some modern writers.

B.

BAC

Bacca.—A berry; that is to say, a succulent seed-vessel filled with pulp, in which the seeds nestle, as in the Tomato. *Bacca corticata* is a berry having a rind, as an Orange. *Bacca sicca* is a fruit which is a berry when unripe, but becomes a dry body when ripened. *Bacca spuria* is any fleshy fruit which is not a true bacca or berry; as the Juniper, Strawberry, Raspberry, etc.

Baccate.—Having a pulpy or succulent texture; a term only applied to the parts of a flower or fruit; berried, fleshy.

Baccate Seeds.—Seeds with a pulpy skin.

Baccatus.—Berry-bearing.

Baccularius.—Such a fruit as that of the Mallow, viz., several one-seeded or two-seeded dry carpels cohering round an axis.

Bacilli.—The separable, moving, narrow plates of which the genus *Diatoma* is composed.

Bacillus.—The little bulbs found on the inflorescence of some plants; a term rarely employed.

Badious.—Chestnut brown.

Bagged.—Resembling a bag or sack.

Balanophoraceæ, (*Cynomoriums.*)—A small natural order, consisting of about thirty species, of singular-looking, succulent, leafless plants, usually highly colored, of various shades of yellow or red; all parasites on roots, and rising from an inch or two to about a foot above ground. Their color and consistence, the absence of all leaves, except in a few species, imbricated scales of the color of the rest of the plant, and the greatly reduced structure of the flowers, had induced some botanists to consider them as *Cryptogamia* allied to *Fungi;* but their structure is now much better understood, and has been fully described, especially by Dr. J. D. Hooker. He has shown them to be most nearly connected with *Haloragæ*, and to have no real affinity with *Rafflesiaceæ*, *Orobanchaceæ*, or any other root parasites, which assume something of a similar color and consistence. The flowers are, in nearly all the species, unisexual, of very simple structure, and produced in considerable numbers, in compact terminal heads or cones; the small perianth, usually simple and inferior in the females, more or less three-cleft or six-cleft in the males, is in some species wholly wanting; the stamens, usually few, are very variable in number and form; the ovary has one or two styles, and always a single cavity with one pendulous ovule.

BAL

The *Balanophoraceæ* are natives of hot climates, in various parts of both the New and the Old World, one species only, the *Cynomorium coccineum*, or *Fungus melitensis* of old authors, being found as far north as the southern shores of the Mediterranean. They have been distributed into fourteen genera. The most remarkable, for the size or beauty of the species, or for the use made of them, are *Sarcophyte*, *Lophophytum*, *Ombrophytum*, *Langodorffia*, and *Cynomorium*.

Balanophagi.—The ancient feeders on acorns and similar food.

Bald.—Destitute of pubescence or downy appendages.

Ball.—The round central part of the flower of the Stapelia, etc.

Balsam.—A name given to various gum-

resinous or oleo-resinous substances. *Bayee Balsam*, a product of *Balsamodendron pubescens*. *Canadian Balsam*, a product of *Abies balsamea*. *Carpathian Balsam*, a product of *Pinus Cembra*. *Copalm Balsam*, a product of *Liquidambar styraciflua*. *Garden Balsam*, *Impatiens Balsamina*, sometimes called *Balsamina hortensis*. *Hungarian Balsam*, an oleo-resinous product of *Pinus Pumilio*. *Balsam of Acouchi*, a product of *Icica Aracouchini*. *Balsam of Copaiva*, an acrid production of various species of *Copaifera*. *Balsam of Maria*, a product of *Verticillaria acuminata*. *Balsam of Peru*, a product of *Myrospermum Peruiferum*. *Balsam of Quinquino*, a product of *Myrospermum pubescens*, sold as White Balsam. *Balsam of Tolu*, a product of *Myrospermum toluiferum*. *Balsam of Umiri*, a product of *Humirium floribundum*. *Tamacoari Balsam*, a product of a Brazilian species of *Caraipa*. *White Balsam*, the same as the Balsam of Quinquino above.

Balsaminaceæ, (*Hydrocereæ*.) — The large genus *Impatiens*, and a single species separated from it under the name of *Hydrocera*, included by Jussieu in the *Geranium* family, have been raised to the rank of a distinct order, on account of the remarkable irregularities in the flowers, which have been variously explained by different botanists. The sepals and petals, all colored, consist usually of six pieces, two outer ones, small, flat, and oblique; the next large, hood-shaped, ending below in a conical spur; the fourth opposite to it, small, but yet very broad and concave, the two innermost very oblique, and more or less divided into two unequal lobes. It has been a matter of much dispute which of them should be considered as sepals and which as petals.

It has now, however, been proved by the examination of some Asiatic species, where there are two additional small sepals, and especially of the *Hydrocera*, where the flowers are less irregular, that the two outer pieces, and the large spurred one, with the two occasional additional ones, are the sepals, that the two innermost lobed pieces consist each of two united petals, and that the broad concave one is the fifth petal, thus bringing the structure more into conformity with that of our true *Geraniaceæ*, with which Balsams agree also in their ovary, and in the fruit which, in bursting open, leaves the attachment of the seeds adhering to the persistent axis. The *Balsaminaceæ* may therefore be again considered as a tribe only of *Geraniaceæ*.

Banded.—Marked with cross-bars of color; when stripes of color are arranged transversely.

Bands.—Applied to the spaces between the lines or ribs of the fruit of umbelliferous plants.

Band-shaped.—Narrow and very long.

Barb.—A hooked hair; a double hook at the end of some bristles, as on the fruit of *Echinospermum Lappula*.

Barbate.—Having long, soft hairs in one or more tufts.

Barbatus.—Bearded, having tufts of soft hairs, as in *Chelone barbata*.

Barbellæ.—The hairs of the pappus of Composites, when they are short, stiff, and straight.

Barbellulæ.—Small, conical, spine-like processes of the pappus of Composites, as in *Aster*.

Barbula.—The inner row of fringes or teeth in the peristome (which see) of such Mosses as *Tortula*. Also the name of a genus of Mosses.

BAR

Bark.—All the outer integuments of a plant beyond the wood, and formed of tissue parallel with it. The only true bark is that of Exogens. In Endogens, False Bark, also called Cortical Integument, stands in the place of bark, from which it is known by the fibrous tissue of the wood passing into it obliquely.

Bark.—The officinal name given to the cortical layers of various plants, used chiefly for medicinal and tanning purposes. The name is, *par excellence*, applied to the Peruvian or Cinchona barks, the source of Quinine. Of these there are many varieties, namely: Calisaya Bark, Royal Yellow, *Cinchona Calisaya;* Light Calisaya, *C. Boliviana, C. scrobiculata;* Peruvian Calisaya, *C. scrobiculata, (Delondriana;)* Carabaya Ash, Jaen, *C. ovata;* Dark Jaen, *C. villosa;* Hard Carthagena, *C. cordifolia;* Woody Carthagena, *C. Condaminea;* Spongy Carthagena, Coquetta, Bogota, *C. lancifolia, (Condaminea;)* Crown, *C. Calisaya;* Select Crown, *C. chahuanguera;* Ashy Crown, *C. macrocalyx, C. rotundifolia;* Fine Crown, *C. crispa;* Loxa Crown, *C. Condaminea;* Wiry Crown, *C. hirsuta;* Cinnamon, *C. coccinea;* Cusco, Ariza, *C. pubescens;* Red Cusco, St. Ann's, *C. scrobiculata;* Huanuco, Gray, *C. micrantha, C. glandulifera, C. nitida;* Original Loja, *C. uritusinga;* Negrilla, *C. heterophylla;* Red, *C. conglomerata;* Genuine Red, *C. succirubra;* Spurious Red, *C. magnifolia.* The principal sorts are sometimes classed thus: *Gray Barks:* Crown or Loxa, *C. condaminea, C. scrobiculata, C. macrocalyx;* Lima, Huanuco, Silver, *C. micrantha, C. lanceolata, C. glandulifera,* and probably *C. purpurea. Red Barks: C. nitida. Yellow Barks: C. Calisaya, C. micrantha, C. Condaminea, C. lancifolia. Rusty Barks: C. hirsuta, C. micrantha, C. ovalifolia,* and probably *C. purpurea. White Barks: C. ovata, C. pubescens, C. cordifolia.* For a complete account of the medicinal Cinchona Barks, see Mr. Howard's splendid volume, entitled, *The Nueva Quinologia of Pavon.*

The following Barks are also employed officinally or economically: *Alcornoco* or *Alcornoque,* the astringent bark of several species of *Byrsonima,* or, according to some authorities, of *Bowdichia virgilioides. Angostura Bark,* the febrifugal bark of *Galipea Cusparia* or *G. officinalis. Babul Bark,* the astringent bark of *Acacia Arabica. Bastard Cabbage Bark,* the bark of *Andira inermis;* the same as Worm Bark. *Bastard Jesuit's Bark,* the bark of *Iva frutescens. Bonace Bark,* the bark of *Daphne tinifolia. Canella Bark,* the stimulant aromatic bark of *Canella alba. Caribœan Bark,* the astringent bark of *Exostemma caribœum. Cascarilla* or Sweet Wood Bark, the aromatic bark of *Croton Cascarilla* and *C. pseudo-China. China Bark,* the febrifugal bark of *Buena hexandra. Conessi Bark,* the astringent bark of *Wrightia antidysenterica. Culilawan Bark,* the aromatic stimulant bark of *Cinnamomum Culilawan. Eleuthera Bark,* the aromatic bark of *Croton Cascarilla. False Angostura Bark,* the bark of *Strychnos nux-vomica. French Guiana Bark,* the febrifugal bark of *Portlandia hexandra. Hemlock Bark,* the astringent bark of *Abies Canadensis,* used for tanning leather. *Jesuit's Bark,* the same as Peruvian Bark. *Juribali Bark,* an astringent bark of Demerara, supposed to be the produce of some Cedrelaceous plant. *Melambo Bark,* the aromatic febrifugal bark of some species of *Galipea,* or one of its allies. *Mesereum Bark,* the acrid, irritant bark of *Daphne Mezereum. Monesia Bark,* the bark

of some South American *Sapotaceæ*. *Muruxi Bark*, the astringent bark of *Byrsonima spicata*, used by the Brazilian tanners. *Niepa Bark*, the febrifugal bark of *Samadera Indica*. *Panococco Bark*, the sudorific bark of *Swartzia tomentosa*. *Quercitron Bark*, the yellow dye bark of *Quercus tinctoria*. *Quillai Bark*, the bark of *Quillaia saponaria*, used as a substitute for soap. *Stringy Bark* of Tasmania, *Eucalyptus gigantea*. *Sweet Wood Bark*, the same as Cascarilla Bark. *Nine Bark*, an American name for *Spiræa opulifolia*. *White Wood Bark*, the same as Canella Bark. *Winter's Bark*, the tonic aromatic bark of *Drymis Winteri*. *Worm Bark*, the bark of *Andira inermis*, formerly used as an anthelmintic. There are other barks, but these are the principal ones having a commercial or medicinal value.

arred.—Crossed by a paler color in spaces resembling bars, as in *Sanseviera Javanica*.

arringtoniaceæ, (*Barringtoniads.*)—A small family, usually considered as forming a tribe of *Myrtaceæ*, with which they agree in the structure of their ovary and perianth, and in the numerous perigynous (which see) stamens, turned inward on the bud; the chief difference consisting in the presence of albumen in the seed. The leaves are alternate, not dotted, and often serrated; these characters, however, also occur occasionally in true *Myrtaceæ*. There are about five hundred and twenty species. They are all trees or shrubs, and inhabit the tropics of the New and the Old World. Some of them bear large flowers of considerable beauty. The principal genera are *Barringtonia* and *Careya* in the Old World, and *Gustavia* in the New.

Barringtoniads.—The English term for *Barringtoniaceæ*.

Baru.—A woolly material found at the base of the leaves of *Saguerus saccharifer*, sometimes called *Arenga saccharifera*.

Basal.—Growing at the base of anything, or attached to the base of any organ or part.

Base.—The end nearest to the point of attachment; the lowest part.

Base-burning Water Heater.—The name of a boiler in use for small green-houses or conservatories. See *Heating by Hot Water*.

Basellaceæ, (*Basellads.*)—A small family consisting chiefly of herbaceous climbers, with leaves more or less succulent, and small, inconspicuous flowers. They are distinguished from *Chenopodiaceæ* by what has been called a double calyx, and the perigynous stamens; but the so-called outer calyx consists merely of the two bracts, which are here attached to the perianth, instead of being free, or at some distance from it; and stamens more or less perigynous occur also in other chenopodiaceous genera. *Basellaceæ* have, therefore, been now reunited with that family as a tribe. The perianth is usually thick and fleshy, and the style is three-cleft, while in true *Chenopodiaceæ* it is more frequently, but not always, only two-cleft. There are about seventeen species, all of which are tropical, and have been distributed into six genera, of which the most important are *Basella*, *Boussingaultia*, and *Anredera*.

Basellads.—The English name for *Basellaceæ*.

Basibractiolate.—A term applied chiefly to the involucre of a Composite when it is surrounded at the base by a distinct order of bracts, as in Dandelion.

BAS

Basidia.—Little elevations found among *Fungi*, consisting of a single cell, having one or more points at its apex, each bearing a spore. Synonymous with *Sporophores.*

Basidiospores.—The spores which stand upon the basidia, which see.

Basilar.—Seated at the base of anything; usually applied to the embryo when situated at the bottom of the seed.

Basineroid.—When the ribs of a leaf all spring from its base, as in most *Melastomaceæ.*

Basisolute.—A term applied to leaves which, like those of *Sedum* and *Echeveria*, are extended downward below their true origin.

Bassorine.—A constituent part of a species of gum from Bassora, as also of Gum Tragacanth and some other gum resins. It is also found in the roots of some tuberous Orchids, etc.

Bast.—A strong woody fiber, much used in some places for making brooms, brushes, etc., obtained from the leaf stalks of *Attalea funifera* and of *Leopoldinia Piassaba.* Also the inner bark of the Lime Tree, of which the Russian mats used in gardens are made. *Cuba Bast* is the fibrous inner bark of *Paritium elatum*, much used for tying up cigars, and by gardeners for tying up plants, etc., as is also the bast of the Lime Tree. *Raphia*, however, is now fast superseding these materials among gardeners for tying purposes. See *Raphia.*

Baueraceæ.—The genus *Bauera*, belonging to the *Hydrangea* family, has been thought by some botanists to possess characters sufficiently distinct to establish it as a separate family, under the name of *Baueraceæ*, but it has not been generally adopted.

BEA

Beak.—Anything which resembles the beak of a bird; a hard, short point; a long, pointed projection. The seed-pods of the Radish furnish an example.

Beaked.—Ending in a long, sharp, or angular point.

Bean.—The common name for *Faba. Bog Bean*, the Buckbean, *Menyanthes trifoliata.—Cujumary Bean*, the tonic seed of *Aydendron Cujumary.—Egyptian* or *Pythagorean Bean*, the fruit of *Nelumbium speciosum.—French* or *Bush Bean*, *Phaseolus vulgaris.—Haricot Bean*, the seed of *Phaseolus vulgaris.—Honey Bean*, the seed-pods of *Gleditschia triacanthos.—Indian Bean*, an American name for *Catalpa.—Kidney Bean*, the common name for *Phaseolus*, especially for those kinds cultivated as esculents. — *Lima Bean*, an American name for *Phaseolus lunatus.—Locust Bean*, the pod of *Ceratonia siliqua.—Molucca Bean*, the seed of *Guilandina Bonducella.—Ordeal Bean* of Old Calabar, the seeds of *Physostigma venenatum.—Ox-eye Bean*, the seed of *Mucuna urens.—Pichurim Bean*, a commercial name for the cotyledons of *Nectandra Puchury.—Sacred Bean*, the common name for *Nelumbium.—Sahuca Bean*, the seeds of *Soja hispida.—St. Ignatius's Bean*, the seed of *Strychnos multiflora;* also a Brazilian name for the seeds of *Fevillea cordifolia.—Scarlet Runner Bean*, the seeds of *Phaseolus multiflorus. Smoking Bean*, the seed-pods of *Catalpa syringæfolia.—Tonga* or *Tonquin Bean*, the seed of *Dipterix odorata.—Underground Kidney Bean*, *Arachis hypogœa*, commonly called Pea-nuts.—*Water Bean*, an English name for the family of *Nelumbiaceæ.—Wild Bean*, a common name for *Apios.—Algaroba Bean* is *Ceratonia siliqua.—Asparagus Bean*, or *Yard Long*, is *Dolichos sesquipedalis.—*

Hibbert Bean is *Phaseolus lunatus*, (same as *Lima Bean.*)—*Horse Bean* is *Canavatia gladiata.*—*Horse-eye Bean* is *Mucuna urens.*—*Inga Bean* is the pod of the Bastard Cassia.—*Malacca Bean* is the seed of *Semecarpus anacardium.*—*Mesquit Bean* is the seed of *Prosopis glandulosa.*—*Pigeon Bean* is the small-seeded field Bean.—*Ram's Horn Bean* is *Dolichos bicontortis.*—*Red Bean* is *Vigna unguiculata.*—*Sea Bean, Florida Bean*, a common name for the seed of *Eutada scandens* and of *Ormosia dasycarpa.*—*Seaside Bean* is *Canavalia obtusifolia* and of *Vigna luteola.*—*Sugar Bean* is *Phaseolus saccharatus* and *P. lunatus.*—*Sword Bean* is *Eutada scandens* and *Canavalia gladiata.*—*Tick Bean* is the common field Bean, *Faba vulgaris.*—*Tree Bean* of Australia is *Bauhinia Hookerii.*—*Yam Bean* is *Dolichos tuberosus.*—*Year Bean* is *Phaseolus vulgaris.*—*Vanilla Bean* is *Vanilla planifolia*, etc.

Bearded.—Having long hair like a beard.

Beardleted.—Having small awns.

Bedding.—This term is used by florists, mostly when plants are set out in what is known as the "Carpet," "Ribbon Line," or "Massing in Color" style of decorative planting. The "Carpet Style" is that produced by planting low-growing plants of different colors and forms of leaves, mainly succulent plants. Sedums, Echeverias, and Sempervivums are used for the purpose. To form carpet-like patterns, they must be such plants as present a smooth, well-defined color, and not exceeding three or four inches in height. To produce the proper effect by this style of planting the plants must be set close enough to form a mass, covering the soil completely up, or the effect will not be so good. Bedding in "ribbon lines" is usually done along margins of drives or walks, in widths from one to ten feet, as desired, the plants used being such as to give the most pleasing contrast in color. The plants usually selected are such as will either form a slope to the walk by planting the highest at the back with the lowest growing in front, or else, if the line is a wide one, such as, by placing the highest plants in the center and the others on each side, will slope to each side of the line. But to keep the lines of color well defined and smooth, the plants must be carefully pinched back, so as to keep each line to its proper height. Bedding by "massing in color" is on the same principle, only that, instead of the plants being planted in lines, they are set in contrasting masses of different colors, in any number of shades desired, though the effect is most marked when but few colors are used in one bed. Large beds are often formed of one color, such as scarlet, maroon, blue, pink, or yellow, which, seen at a distance, in contrast with the green of the lawn, is by many more admired than when the colors are placed together.

Bedeguar.—Sweet-brier sponge; a sponge-like gall or excrescence on the branches and leaves of some Roses, coated with fibrous expansions of the tissue. This appearance is occasioned by the puncture of a Gall-fly.

Begoniaceæ, (*Begoniads.*)—A natural order of dicotyledonous plants, belonging to the monochlamydeous (which see) subclass of De Candolle. Lindley places the order in his Cucurbital (Cucumber) Alliance. The order contains herbaceous plants or succulent under-shrubs. The leaves have an oblique form, and are placed alternately on the stem, having stipules at their base. The flowers con-

sist of a single colored perianth, usually pink, which is placed above the ovary or seed vessels. Some flowers have stamens only, and others pistils only. In the former the perianth has from two to four divisions; in the latter from two to eight. The stamens are numerous, and collected in a head. There are three stigmas, and the fruit is winged, and has three divisions. Some of the plants produce buds which are easily detached so as to constitute new plants. The species are common in the East and West Indies and South America; and a few are found in Madagascar and South Africa. They are said to possess bitter and astringent qualities. According to Klotzsch, the order contains forty-two genera and nearly four hundred species. The following genera illustrate the order: *Bursa, Begonia, Diploclinium, Ewaldia, Mezieria,* and *Gireondia.* De Candolle admits only *Casparya* and *Mezieria* of Klotzsch's genera, referred to above, retaining about three hundred and fifty species in *Begonia* proper, distinguishing them by certain peculiarities of the placenta and the capsules.

Begoniads.—The English term for *Begoniaceæ.*

Bell Glass.—Bell Glasses were formerly extensively used in propagating the more difficult kinds of woody plants, but are now rarely used unless to cover circular Ferneries or some delicate plants like the *Anœctochilus.* They vary in size from eight to twenty inches in height, and from six to fifteen inches in diameter. See *Hand Glass.*

Bell-shaped.—Having a tubular and inflated form, so as to resemble a bell, as in *Campanula.*

Bellworts.—A common name for the group

Campanulaceæ. The term is also used in the United States for *Uvularia.*

Bellying.—When a round body is more prominent on one side, or at one point, than at another.

Bents.—A common country name in England for the dried stalks or culms of various grasses occurring in pastures, especially those of *Agrostis* and *Cynosurus.*

Berberidaceæ, (*Berberids.*)—A natural order of Exogens, belonging to the Thalamifloral sub-class of De Candolle. Lindley includes the order in his Berberal Alliance along with Vineworts and Fumeworts. The family is composed of shrubs and herbaceous perennials, with alternate compound leaves, which are often spiny. The sepals are three, four, or six in a double row; the petals are equal to the sepals in number, or twice as many; the stamens are equal in number to the petals, and opposite to them; the anthers have two lobes, each opening by a valve, which rolls up from the bottom to the top. The ovary is solitary and one-celled, and the stigma orbicular. The fruit is either a berry or a capsule, with one, two, or three seeds. These plants are found in South America as far as the Straits of Magellan, and in the mountainous parts of the northern hemisphere. They are common in the northern provinces of India, but none are found in Africa, Australia, or the South Sea Islands. The fruit of some of the species is used as a preserve, and is sometimes eaten in a fresh or dried state. They possess acid, bitter, and astringent qualities, and oxalic acid occurs in some. The stem and bark of several species are used in dyeing yellow. The astringent substance called Lycium by Dioscorides is supposed to be furnished by the root

of various species of Berberry, and a similar preparation is much used in India as a febrifuge. The pinnate-leaved Berberries form the sub-genus *Mahonia*. The order contains twelve genera and a hundred and ten species, among which are *Berberis*, *Leontice*, *Epimedium*, *Nandina*, *Jeffersonia*, etc.

Berberids.—The English term for *Berberidaceæ*.

Berry.—A pulpy fruit containing seeds, as the Strawberry. See *Bacca*.

Betonica.—An old Linnæan name for various plants, now referred to *Stachys*.

Betuline.—Birch Camphor, a peculiar resinous substance, principally furnished by the Birch Tree.

Betulaceæ, (*Birchworts.*)—A natural order of Exogens, belonging to the Monochlamydeous sub-class of De Candolle, and to the Amental or Catkin-bearing Alliance of Lindley. The order consists of trees or shrubs, which have alternate, simple, stipuled leaves, often with the primary veins running straight from the midrib to the margin. The flowers are in catkins, some having stamens only, and others pistils only; and they have scales instead of a perianth, or floral envelope. The Alder, however, has a four-leaved perianth. The stamens are opposite the scales. The ovary is two-celled, with a single pendulous ovule in each cell; there are two stigmas. The fruit is dry, does not open, and is one-celled and one-seeded. The plants are found in the woods of Europe, Northern Asia, the Himalayas, and North America. They also inhabit the mountains of Peru and Columbia, and the antarctic regions. They are mostly timber trees with deciduous leaves. The bark possesses tonic qualities, and is occasionally employed as a substitute for paper, and is used by the Indians for making their canoes. It is also used as an astringent for gargles, and for dyeing and tanning. *Betula alba* is the common Birch. Its sap contains sugar, and by fermentation yields a kind of so-called wine. The empyreumatic oil of the Birch has been recommended in various affections, and is used in the preparation of Russia leather, to which it gives a peculiar odor. The Alder (*Alnus glutinosus*) grows in moist places, and the wood has been used for the piles of bridges, on account of its resistance to the action of water. The Rialto of Venice is built on Alder piles, as are many houses in Amsterdam. Sabots are also made of the wood. There are two genera, (*Betula* and *Alnus*,) and upward of sixty species.

Beurré.—A general name applied to a class of dessert Pears, which have their flesh of what is called a buttery texture, as the name itself indicates.

Bi.—This prefix, in compound words, means *twice*, as bi-pinnate, *twice* pinnate.

Biacuminatus, *Biacuminate.*—Having two diverging points.

Bialata.—Two winged.

Biarticulate.—Two-jointed.

Biaurite.—Having two little ears. See *Auriculate*.

Bicallose.—Having two callosities, as the lip of many Orchids.

Bicarinate.—Having two elevated ribs or keels on the under side, as in the pales of many grasses. See *Pales*.

Biceps.—Having two heads; a term sometimes applied to the keel of a papilionaceous corolla, when the ungues of the two petals of which it is composed are distinct. See *Ungues*.

Biconjugate.—Twice-paired, as when each

of two secondary petioles bears a pair of leaflets.

Biconjugate-pinnate.—When each of two secondary petioles is pinnated.

Bicornis, Bicornute.—Having two horn-like processes.

Bicrural.—Having two legs or narrow elongations, as the lip of the Man Orchis.

Bicuspidate.—Twice-pointed.

Bidentate.—Having two teeth, or a double row of teeth.

Bidigitato-pinnate.—The same as Biconjugate-pinnate.

Biduous.—Lasting two days only.

Biennial.—Lasting two years. A biennial plant requires two years to form its flowers and fruit; growing one year, and flowering, fruiting, and dying the next. This, however, is not true of all climates. Many plants that are classed as biennials in England, when sown in the southern parts of the United States, or in a hot-bed in March, at the North, and planted out in summer, will flower, seed, and die just as many annuals do.

Bifarious, Bifariam.—Arranged in two rows. This term is frequently applied to flowers and to ovules.

Bifariously Imbricated.—Overlapping in two rows.

Biferus.—Double-bearing; producing flowers or fruit twice in the same season.

Biforate.—Having two pores or apertures.

Biforines.—Oblong cells, with an aperture at each end, through which raphides are expelled. See *Raphides.*

Bifidus, Bifid.—Divided half way down into two parts.

Biflorus.—Having two flowers on the same footstalk.

Bifoliate.—Having two leaves.

Bifoliolate.—Having two leaflets only to a leaf, as in some compound leaves.

Bifolliculus.—A double follicle.

Bifrons.—Growing on both surfaces of a leaf. Also appearing equally like two different things. A term seldom used.

Bifurcate.—Twice forked; having two pairs of diverging horn-like arms.

Bigeminate.—The same as biconjugate, which see.

Bigeminous.—In two pairs; as the placentæ of many plants.

Bigeners.—Mule plants obtained by crossing species of different genera. This kind of hybridism has been said to be impossible. Kölreuter in particular adduced examples of failure in the attempt; but modern experiments seem to show the possibility of such a union.

Biglandular.—Double-glanded.

Biglumis.—Consisting of two of the scales called, among grasses, glumes.

Bignoniaceæ, (*Bignoniads;* the Trumpet Flower family.)—A natural order of Dicotyledonous or Exogenous plants belonging to the sub-class Corollifloræ of De Candolle, and to the Bignonial Alliance of Lindley, which includes also *Scrophulariaceæ, Acanthaceæ,* and *Gesneraceæ.* The order contains trees and twining or climbing shrubby plants, with usually opposite compound leaves, and showy, often trumpet-shaped flowers. The calyx is divided or entire, sometimes in the form of a spathe; the corolla is usually irregular, four to five lobed, and with a swollen portion below its mouth; the stamens are five in number, and unequal, one generally, two occasionally, being abortive. The ovary has two cavities, surrounded by an expansion at its base; the ovules are attached to the central part of the ovary. The fruit is a two-valved, often pod-like capsule, divided by a spurious expansion of the placenta; the

seeds are usually numerous and winged; the embryo is without albumen, and has broad, leafy cotyledons. The plants are found in the tropical regions of both hemispheres, but most largely in the eastern. In America they extend from Pennsylvania in the north to Chili in the south. They are not found wild in Europe. The plants produce an abundance of showy, finely-colored flowers. Some yield dyes, and others supply timber. Some have medicinal qualities. There are forty-six genera and four hundred and fifty-two known species. *Bignonia, Catalpa, Eccremocarpus, Tecoma, Calosanthes,* and *Jacaranda* are representative genera.

Bignoniads.—The English term for *Bignoniaceæ.*

Bijugous.—A pinnate leaf with two pairs of leaflets.

Bilamellate.—Consisting of two plates, as many placentæ, stigmas, etc., or bearing two vertical plates, as the lip of some Orchids.

Bilobiate.—Having two lips; a corolla divided into two separate parts or lips, placed one over the other, as in Sage, Bugle, and similar plants.

Bilobed.—Divided into two lobes, as the anthers of most flowers.

Bimestral.—Existing for two months only.

Bimus.—Lasting two years.

Binate, Binus.—In pairs ; growing two together. It also has the same meaning as Bifoliate, which see.

Binato-pinnate.—The same as bipinnate.

Bini.—Two together; twin.

Biniflorous.—Bearing flowers in pairs; a term now seldom used.

Binodal.—Consisting of two nodes, or articulations, and no more.

Biovulate.—Containing two ova, or young seeds. Seeds before they are matured are called ova.

Bipaleotate.—Consisting of two small scales or palæ, as in grasses. See *Palæ.*

Bipartible.—Capable of being parted into two.

Bipartite.—Divided nearly to the base into two parts.

Bipentaphyllous.—Having from two to five leaflets.

Bipes.—The same as Bicruris, which see.

Bipinnate, Bipinnatisected.—Twice pinnate; as when the primary and secondary divisions of a leaf are pinnated.

Bipinnatifid, Bipinnatiparted.—When both the primary and secondary segments of a leaf are pinnatifid.

Bipinnatipartito-laciniate.—Being bipinnatifid with the divisions laciniated.

Biplicate.—Having two folds or plaits.

Biporose.—Opening by two round holes.

Biradiate.—Consisting of two or more rays, as in certain umbels.

Birchworts.—A name given by Lindley to the Betulaceous order.

Birdlime.—A preparation of the bark of the Holly, *Ilex aquifolium.* It is also obtained from the viscid berries of the Mistleto, *Viscum album.*

Birimose.—Opening by two slits, as in most anthers.

Birthworts.—A name given by Lindley to *Aristolochiaceæ.*

Bisaccate.—Having two little sacks, bags, or pouches.

Biseptate.—Having two partitions.

Biscutate.—Resembling two bucklers (*scuta*) placed side by side, as in *Biscutella.*

Biserial.—Arranged in two rows not on opposite sides of an axis, as on a flat surface.

Biserrate.—When serratures are themselves serrate.

BIS

Bisulcate.—Doubly furrowed.

Biternate.—Divided into three twice over, as when the principal divisions of a leaf are three, each of which bears three leaflets.

Bi-tri-crenate.—Crenate twice or thrice.

Bi-tri-pinnatifid.—Pinnatifid twice or thrice over.

Bi-tri-ternate.—Growing in threes twice or thrice over.

Bitten.—Terminated irregularly and abruptly; applied to leaves and roots.

Bivaginate.—Having double sheaths or covers.

Bivalved.—Two-valved.

Bivittate.—Having two vittæ. See *Vittæ.*

Bixaceæ, Bixineæ.—A name sometimes given to the order of Bixads, more generally called *Flacourtiaceæ*, which see.

Black Rust.—See *Rust.*

Blade.—The lamina or expanded part of a leaf; the limb of a leaf.

Blanching.—A whitening of the usually green parts of plants, to which the term Albefactio is applied. See *Albefactio.* Earthing up Celery is a familiar example of blanching.

Bland.—Fair, beautiful, as *Mesembryanthemum blandum.*

Blastema.—The axis of an embryo, comprehending the radicle and plumule, with the intervening portion; also the thallus of a Lichen. See *Thallus.*

Blastidia.—The secondary cells generated in the interior of another cell.

Blastus.—The plumule.

Blepharæ.—The teeth or fringes belonging to the peristome (which see) of an Urn Moss.

Bletting.—That kind of change in tissue which results in the formation of a brown color without putrefaction, as in the fruit of the Medlar. The term *Hyposathria* (which see) is applied to this change.

BLU

Blight.—As used by cultivators this term is of vague significance. It is applied to those diseases of grain, etc., which usually depend upon the presence of parasitic *Fungi.* The Pear Blight, so destructive to Pear Trees for many years past, is now generally believed to be owing to the presence of a Fungus, though not a few still believe that it is to be attributed to a diseased condition of the sap. There have been several theories put forth to account for this destructive disease, and the subject still remains more or less of a mystery. Insects have also been charged with producing the disease; but whatever the cause, all know the results to be only too fatal, and, thus far, without remedy. Blight is not confined to the field and the orchard, but also finds its way to plants in the garden. If *Fungi* are not the cause of the disease, they may be said to be always present as a result.

Blind Shoot.—This is the term used for a young shoot which terminates without a flower bud, as in some shoots of Roses, Camellias, etc.

Blistered.—Having the surface raised as the skin is when blistered.

Blood and Bone Fertilizer.—See *Fertilizers.*

Blood Fertilizer.—See *Fertilizers.*

Bloodroots.—A name applied by Lindley to the order *Hæmadoraceæ.*

Blotched.—Where color is irregularly disposed in broad patches.

Blue Mould.—This name is commonly applied to *Aspergillus glaucus*, when growing upon cheese. There are people who think it so necessary to a good cheese, that they will set even a poor one aside till it becomes mouldy, assuming that it thereby becomes better, and some even inoculate the cheese with Blue

Mould. On the other hand, many people regard this Mould with suspicion. Bread and meat affected with it have been known to produce serious consequences when eaten, though it is possible that the meat may have been diseased before the Mould made its appearance. It is stated, again, that persons have collected the Mould, and eaten it without serious results. The question of its poisonous nature is one of so much importance that farther and closer investigation would seem to be desirable.

Boat-shaped.—Having the figure of a boat in miniature, with its keel.

Boilers.—See *Heating.*

Bole.—The trunk of a tree.

Bombaceæ.—The Silk-cotton family, a group of Thalamifloral Dicotyledons or Exogens belonging to Lindley's Malval Alliance, and usually considered as a sub-order of *Sterculiaceæ*, which see.

Bombycine.—Silky; feeling like silk. This term is not applied to hairiness of any sort.

Bone Dust.—One of the safest and best concentrated fertilizers. When used broadcast, it should be sown on the soil after digging or plowing, just thick enough to cover it with a thin layer, about as thickly as sawdust or sand is used on a floor. If used on dug ground, it should be well chopped and mixed through the soil, so as to mix it to a depth of five or six inches. If on ground that has been plowed, a thorough harrowing will mix it to the required depth. This thickness will require at the rate of from fifteen hundred to twenty-five hundred pounds per acre. If to be used in drills or "hills," or only where seed are to be sown or plants planted, and not over the whole ground, it will take only about from one hundred and fifty to three hundred pounds per acre, which should be mixed in the soil in the same manner.

Borageworts.—A name applied by Lindley to the boraginaceous family. See *Boraginaceæ.*

Boraginaceæ, (*Borageworts, Asperifoliæ.*)—A natural order of Corollifloral Dicotyledons or Exogens belonging to Lindley's Echial Alliance. They are herbs or shrubs with round stems, alternate rough leaves, and spirally coiled inflorescence. The calyx is four to five divided, and persistent; the corolla is generally regular and five-cleft; the stamens are five, inserted in the corolla, and alternate with its divisions; the ovary is four-lobed, with a style arising from the base of the lobes. The fruit consists of distinct seeds without albumen. This order was formerly called *Asperifoliæ*, from the roughness of its leaves. The plants are principally natives of northern temperate regions. They are found in Southern Europe, the Levant, and Central Asia. In high northern latitudes they are less frequent, and nearly disappear within the tropics. The plants abound in mucilaginous and demulcent qualities. Some yield dyes, as Alkanet, (*Anchusa tinctoria.*) The common Borage, (*Borago officinalis,*) when steeped in water, imparts coolness to it, and is used in the beverage called cold tankard. *Mertensia maritima* is cultivated as a vegetable under the common name of Oyster Plant. The species of *Myosotis* are universally prized under the name of Forget-me-not. There are fifty-eight known genera of this order, and 688 species. *Myosotis, Borago, Cynoglossum, Lithospermum, Cerinthe, Symphytum, Anchusa,* are examples of this order.

Bordered.—When the margin is characterized by a distinction in color, texture, or other consideration, from the rest of any part.

Bossed.—Circular and flat, with a prominent center, like a target, as in the fruit of *Paliurus australis.*

Botrylaceæ.—An order of *Fungi,* usually known as mildew and blight.

Botrys.—The term applied in Greek compounds to the raceme. A bunch.

Botuliform.—Sausage-shaped.

Bouquet.—This is the name given to various forms of artificially-constructed cut flowers. They are made with great skill and taste in the City of New York, in various forms, but usually in the round parasol or Mushroom-like form, ranging in size from six to twelve inches in diameter. Many decry this artificial arrangement of flowers, but it cannot well be otherwise; for the moment we cut them from the plant and begin to tie them together, we leave nature, so that any attempt to make a bouquet, or, in fact, any arrangement of *cut* flowers, in a *natural* manner, is utter nonsense. The most cultivated tastes have long decreed that the best style of bouquet is the formal, where different colors are used in consecutive rings, or alternating with each other, in geometrical forms, rather than a mixed, unsystematic blending of color.

In detailing the *modus operandi* of bouquet making it is necessary to give the following details. So many flowers have short stems, or grow so close to buds which the grower cannot afford to cut, that artificial stems must be used. Even where stems are available, the bouquet maker prefers having another added to hold the flower in position, the strength of the stem being proportioned to the

weight of the flower it bears. Thick stems must be avoided, else the bouquet handle becomes clumsy. The stems commonly used are of broom-corn, or very small sticks like tooth-picks, cut in lengths as desired, from four to eight inches. With this and hair wire cut to three inches, the "stemmer" goes to work. By a rapid twist one end of the wire is fastened on the straw, and the flower is attached by a whirl of the stem between finger and thumb. Stemming is a large part of the labor of bouquet making, and occupies the greater part of the time needed in the operation, one bouquet maker requiring two stemmers. The flowers thus stemmed, a Rose or other prominent flower is taken for the center of the bouquet, which is tied securely to the bouquet stem, (a thin stiff twig,) and is then wound with Moss, to keep the flower from outer pressure, the Moss running to a point about two inches below the flower. Six smaller Rose-buds or Carnations are now set at regular intervals around and on a line with the outer petals of the large center Rose, and the spaces between these each filled with a small piece of White Alyssum, a very small Geranium leaf or point of delicate green being set by each bud. A little Moss is now wound lightly, close under the flowers, to prevent crowding, a pink Carnation set behind each Rose-bud, with Lily of the Valley or Hyacinths between, a piece of Eupatorium being inserted under the edge of each to fill out. Six Roses, alternately pink and white, of equal size and form, stemmed as described, are now set at regular intervals around, particular care being taken to form with the face of these flowers the correct outline of the bouquet, and their stems tightly bound

to prevent working out of place. Between each Rose-bud, on the inner side, another white flower is set, filled out with a piece of pink under each side; more Moss is added, and a bright piece of crimson Bouvardia forms the sole dividing line between the centers of the Rose-buds, which nearly touch each other. A Safrano Rose-bud follows, with Violets set in Sweet Alyssum on one side and a small Geranium leaf in the same on the other; a white Carnation is set behind each bud, with a piece of Bouvardia in Eupatorium on each side. A light border of Stevia is now set around the whole, and, with Smilax or Camellia leaves stemmed, and projected nearly half their length, the bouquet is finished. The back is trimmed with bouquet green, or fine leaves of any evergreen. The handle is cut to about four inches, and is wrapped with tinfoil, and tied above with a ribbon of white satin. This is only one of a dozen ways of constructing bouquets, and is by no means given as the best. Fashion is constantly changing the kinds of flowers used; for example, twenty years ago no bouquet was supposed to be complete without the use of the Camellia Japonica flowers, but to-day fashion entirely ignores these symmetrical and beautiful flowers, and they are rarely used, unless for large table bouquets, or other designs in cut flowers.

Boxes for Seeds.—Seeds, particularly flower seeds, when sown under glass, do much better when sown in shallow boxes than in flower-pots. A convenient size is the ordinary soap-box, cut into four, making a depth of from one and a half to two inches. These are filled nearly full with finely-sifted soil, which is made as level and smooth as possible. On this smooth surface the seeds are sown, and then pressed down level into the soil, and over the seeds is sifted dry moss, leaf mould, or cocoanut fiber, (which has been run through a sieve as fine as mosquito wire,) in quantity enough to fairly cover the seeds. This, from its spongy nature, retains moisture, while its lightness offers but little resistance to the tender seed germ. The same style of box is used for "pricking off," which see.

Brachialis.—An ell long; twenty-four inches long.

Brachiate.—Having arms or branches usually placed opposite each other, nearly at right angles with the main stem, and crossing each other alternately.

Brachium.—An ell or two feet.

Brachypodous.—Having a short foot or stalk.

Brachys.—In words of Greek origin signifies short.

Bracken or *Brake.*—A common English name of *Pteris aquilina.*

Bracteæ or *Bracts.*—The leaves placed immediately below a calyx, if they are at all altered from their usual form.

Bracteolæ, Bracteoles, or *Bractlets.*—Bracts of a second order, usually smaller and more changed than the true bracts; also any small bracts.

Bracteate.—Furnished with bracteæ or bracts.

Bracteolæ.—Little bracts.

Branch.—The developed state of a leaf bud, when similar to the main stem or trunk. Though branches are usually considered to be subdivisions of the trunk itself, they more closely resemble an aggregation of separate individuals grafted upon it.

Branchlets.—Small branches.

Brassicaceæ.—The Cabbage family, a natural order of Thalamifloral (which see)

BRE

Exogens, to which the name of *Cruciferæ* is usually given. See *Cruciferæ*.

Brexiaceæ.—The genera *Brexia, Ixerba, Argophyllum,* and *Roussœa,* containing only one or two species each, have been proposed as a small family allied to *Saxifragaceæ.* They are not, however, very closely connected with each other, and do not seem to have any well-marked characters in common. See *Escallonieæ.*

Brimstone, Vegetable. — The inflammable spores of *Lycopodium clavatum* and *L. Selago,* sometimes employed in the manufacture of fireworks.

Bristles.—Rigid hairs.

Bristleworts.—A name applied by Lindley to the *Desveauxiaceæ.*

Bristly.—Covered with stiff, sharp hairs or bristles.

Bristly-toothed.—Having bristles like teeth, or with the teeth ending each in a bristle.

Bromeliaceæ, (*Bromeliæ, Bromeliads, Tillandsiæ, Bromelworts,* the Pine-apple family.) —A natural order of Epigynous Monocotyledons included in Lindley's Narcissal Alliance. The order consists of short-stemmed plants, with rigid, channeled, and often scurfy and spiny leaves and showy flowers. The outer perianth or calyx is three-parted and persistent; the inner, or corolla, consists of three withering petals; the stamens are six, inserted in the tube of the perianth, with the anthers opening on the side next the pistil; the style is single. The fruit is either a dry capsule or succulent, three-celled, and many-seeded; the embryo is very small, at the base of mealy albumen. They are natives of the American continent and islands, whence they have been distributed to Africa and the East Indies. *Ananassa sativa,* the Pine-apple or

BRO

Ananas, is one of the best known and most delicious of this or any other order. The fruit is composed of the pistils and bracts of several flowers united into a succulent mass, and crowned by a series of green leaves. The fibers of the plant are used in manufacture. The Pine-apple is grown under glass very successfully in Europe, but the fine condition in which they are received here from Jamaica and other places, makes their culture under glass here unnecessary. Some of the Bromeliads grow attached to the branches of trees, and are called Air Plants, the best known here being *Tillandsia usneoides,* the Tree Beard of South America. Under the name of Florida Moss it is very largely used for decorative purposes. It is also used for stuffing cushions, etc., under the name of Spanish Moss, Black Moss, or Long Moss. There are twenty-eight known genera, and one hundred and seventy-six species of this order. *Bromelia, Ananassa, Bilbergia, Æchmea, Tillandsia, Bonapartea,* are examples of the order. The bracts of some of the species are exceedingly beautiful.

Bromeliads. —The English term for *Bromeliaceæ.*

Broom.—A name applied to *Cytisus* or *Sarothamnus scoparius,* and also to *Lygeum Spartum. African Broom* is a common name for *Aspalathus. Butcher's Broom* is *Ruscus aculeatus,* and is also a common name for *Ruscus. Dyer's Broom* is *Genista tinctoria. New Zealand Broom* is *Carmichaelis australis. Rush Broom* is a common name for *Viminaria;* it is also applied to *Spartium junceum. Spanish Broom* is *Spartium junceum. Broom Corn* is *Sorghum vulgare,* the branched panicles of which are made into carpet

brooms and clothes brushes; and also *Sorghum saccharatum*.

Brownian Motion.—A phenomenon sometimes called molecular motion, which occurs in minute particles both of vegetable and mineral origin, consisting, says the Rev. Mr. Berkeley, in a rapid, whirling motion, the nature of which is obscure, but is certainly independent of evaporation, or other appreciable internal causes which produce motion in minute bodies. It may be seen admirably in a weak solution of gamboge with a power of 250 linears. It is frequently observed in the minute anatomy of vegetables, especially when the tissues are diseased.

Bruniaceæ.—A small family, not differing in any important character from *Hamameliaceæ*, though quite different in habit. See *Hamameliaceæ*.

Brunneus.—Deep brown, not much different from chestnut brown.

Bryaceæ.—A large group of Acrocarpous Mosses, distinguished by the capsules having a double row of teeth, the inner of which are united at the base by a common plicate membrane. Very rarely there is only a single row, or the teeth are obsolete. The capsule is almost always pendulous. The stem is at first simple, but at length becomes branched by means of new shoots, called innovations, given off near the tip, or the base, sometimes from subterranean creeping shoots. The leaves have a large central nerve, and consist of large reticulations, and are mostly serrated at the margin and thickened. Very rarely the fruit is lateral, as in *Mielichoferia*. Many of the species of *Mnium*, as *M. punctatum*, *M. rostratum*, *M. undulatum*, are great ornaments to woods and rocks from their large leaves and handsome capsules,

while various species of *Bryum* attract notice on walls, gravel walks, and marshes, by their tufted habit and abundant pendulous capsules. Sometimes the term *Bryaceæ* is applied to the whole of the true Mosses.

Bryology.—That part of botany which treats of Urn Mosses.

Buccæ.—The lateral sepals or wings of the flower of an Aconite; now seldom used.

Bud.—The young undeveloped branch or flower; as, a leaf bud, a flower bud.

Budding.—This is the practice in use of placing a bud of one variety of plant on another. The shoot or stock to be budded upon must always be in a thrifty, growing state, so that the bark can be raised freely from the wood, and the bud to be inserted must be in such a state that it shows prominently at the axil of the leaf. Select a smooth portion of the stem of the shoot to be budded upon, strip it of leaves (or thorns, if any) sufficient to allow room for the operation; then make a cut through the bark to the wood in length sufficient to admit the bud, with a cross cut at the top. Above this cross cut make a slight sloping cut in the bark, about a quarter of an inch in length, so as to admit the easy insertion of the bud. This custom is not general, but it will be found to be easier, and, we think, safer. Next take the shoot from which the bud to be inserted is to be cut, and selecting such as have the properly developed condition of bud, cut it from the shoot about half an inch on each side of the bud, just deep enough to get about as much thickness of the wood as the bark. If the portion of the shoot from which the bud is taken is well ripened, it is best to separate the wood from the bark; but if not, it will do quite

as well not to remove it, but insert the bud in the stock just as it is cut. The edges of the cut in the stock are lifted and slightly pressed outward by the point of the budding-knife, the bud inserted, and pushed down by the ivory handle. To keep the bud in place it is wrapped neatly round with any soft tying material, the fiber known as Raphia being the best. In two or three weeks after the bud has been put in it will be safe to remove the tying. All shoots starting *below* the bud must be rubbed off as soon as they start, and when the bud begins to grow, the portion of the stock *above* the graft must be cut off, so that the inserted bud may get the full benefit of growth.

Bulb.—An underground bud, consisting of numerous fleshy scales placed one over the other; a modified form of the leaf bud. A bulb is usually placed partly or entirely underground. There are several kinds of bulbs, the following being the most common: A *Naked Bulb* is a bulb whose scales are loose and almost separate, as in the Crown Imperial. A *Tunicated Bulb* is one whose fleshy scales overlap each other, forming concentric layers, the outer ones being thin or membranous, such as Hyacinths, Onions, Tulips, etc. A *Solid Bulb* is properly a *Corm*, which see.

Bulbiferous.—Bearing or producing bulbs.

Bulbil or *Bulbillus.*—An axillary bulb with fleshy scales, falling off its parent spontaneously, and propagating it. Applied more especially to those buds on the stem, which occasionally assume the character of bulbs, as in *Lilium tigrinum.*

Bulbodium.—The solid bulb of old botanists; the same as a *corm*, which see.

Bulbosi Pili.—Hairs that proceed from a swollen base.

Bulbosus.—Having the structure of a bulb; having bulbs.

Bulb-tuber.—A corm, which see.

Bullate.—Blistered, puckered; as when the parenchyma (which see) of a leaf is larger than the area within which it is formed.

Bulrushworts.—A name given by Lindley to the *Typhaceæ.*

Burmanniaceæ.—A family of Monocotyledons, which are allied to Orchids in their inferior ovary, (which is either three-celled or with three parietal placentas,) in their trimerous flowers, (see *Trimerous,*) and especially in their minute seeds, with a loosely netted testa (which see) inclosing an apparently homogeneous nucleus or embryo; they differ, however, in their perfectly regular flowers, with from three to six distinct stamens and a central simple or three-cleft style. They are all herbaceous plants, bearing blue or white flowers, and inhabit marshy or shady places. The slender annual stems in some genera have no leaves except small colorless scales, which led former botanists to regard them as parasites; but it has been ascertained that they grow on rotten leaves and other decayed vegetable substances, and not on living plants. There are about thirty species of *Burmanniaceæ*, all of which are tropical except one North American *Burmannia.* There are ten or eleven genera, including *Tacca*, which some botanists regard as a distinct family under the name *Taccaceæ.*

Burry.—Covered with hooked stiff hairs, like the heads of Bur or Burdock.

Bursicula, (adj. *Bursiculate.*)—A small purse. A pouch-like expansion of the stigma, into which the caudicle (which see) of some Orchids is inserted.

Bush.—A low shrub, densely branched from the very surface of the ground.

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Butomaceæ, (*Butomads;* the *Flowering Rush* family.)—A natural order of Hypogynous Monocotyledons belonging to Lindley's Alismal Alliance. They are aquatic plants, often milky, with very cellular leaves and umbellate, showy flowers. The perianth consists of six pieces, the three inner, or corolla, being colored like petals. The stamens are either below or above twenty in number, and hypogynous. The ovaries are three to six or more, either separate or united; the ovules are numerous. The fruit consists of achenes or follicles, separate or united. The seeds are numerous, attached to a net-like placenta, which is spread over the whole inner surface of the fruit, and are without albumen. The plants are natives of the marshes of Europe, the northwestern provinces of India, and equinoctial America. *Butomus umbellatus*, the Flowering Rush, is an ornamental aquatic common in England. Its underground stem is roasted and eaten in Asia. There are four genera and seven species. *Butomus* and *Limnocharis* are examples of this order.

Butomads.—The English term for *Butomaceæ.*

Byssaceous.—Composed of fine entangled threads.

Byssi.—A name which formerly included

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a heterogeneous mass of perfect and imperfect plants of various affinities, but is not now used, the term *byssoid* alone being retained to express a peculiar fringed structure, in which the threads or fascicles of threads are of unequal lengths.

Byssoid.—See *Byssi.*

Byssus.—The stipe of certain *Fungi.*

Byttnerieæ, (*Buettnerieæ.*)—A tribe of the natural order *Sterculiaceæ*, regarded by some botanists as a distinct order, and referred by Lindley to his Malval Alliance of Thalamifloral Exogens. The Chocolate and Cocoa of commerce belong to this tribe, being prepared from the seeds (called Cocoa Beans) of *Theobroma Cacao*, a small tree found in the forests of Demerara. The seeds contain a tonic substance called theobromine, allied to theine, while a fatty oil is expressed from them called the butter of Cacao. From the pulp of the fruit a kind of spirit is distilled. The following genera are examples of this tribe: *Glossostemon*, with palminerved leaves; *Abroma*, with palmilobed or entire leaves; *Theobroma*, with simple penninerved leaves; *Herrania*, with palmated or digitate leaves; *Guazuma*, with simple leaves; *Buettneria*, with simple, more or less heart-shaped leaves; and *Rulingia*, with simple or lobed leaves.

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Cabbage Worm.—A worm very destructive to the Cabbage. See *Insects.*

Cabombaceæ, (*Cabombeæ*, *Hydropeltideæ*, *Water Shields.*)—A natural order of Thalamifloral Dicotyledons, belonging to Lindley's Nymphal Alliance. They are aquatic plants with shield-like leaves; sepals and petals three or four, alternating; stamens six to thirty-six. Carpels distinct, two to eighteen; seeds not numerous; embryo in a membranous bag, outside abundant fleshy albumen. The

plants are allied to the Water Lilies, and are found in America from Cayenne to New Jersey, as well as in New Holland. There are two genera, *Cabomba* and *Hydropeltis*, which comprise three genera.

Cactaceæ, (*Cacti*, *Cacteæ*, *Opuntiaceæ*, *Nopaleæ*; *Indian Figs*, the *Cactus* family.)—A natural order of Calycifloral Dicotyledons, consisting of succulent shrubs, with remarkable spines clustered on the stems, which are angular, round, two-edged, or leafy, and have their woody matter often arranged in a wedge-like manner. The calyx consists of numerous sepals, combined and epigynous, (which see;) the petals are numerous; the stamens are numerous, with long filaments. The ovary is one-celled, with parietal placentas; the style is single, and the stigmas several. The fruit is succulent, and the seeds without albumen. They are natives of various parts of America, but have been introduced into many parts of the world. The fruits of the *Opuntias* are called Indian Figs, and are edible, having a subacid and refreshing juice. The stems of some of the species are eaten by cattle. These stems vary greatly in form, some being spherical, others jointed, while still others are triangular, and some send polygonal shafts sixty feet or more into the air. These stems are very succulent or fleshy, and the plants are thus adapted to dry climates, or, rather, such as have a "dry season." Among the tall-growing kinds may be mentioned *Cereus giganteus*, growing sixty or more feet high, and from one to two feet in diameter; *C. Peruvianus*, with stems thirty to forty feet high; *C. Thurberi*, with stems ten to fifteen feet high, and *C. Schottii*, with stems eight to ten feet high. The spines on some Cacti are very formidable, and on others very numerous. The spines and bristles on a specimen of *Echinocactus platyceras* were reckoned at 51,000, and those of a *Pilocereus senilis* at 72,000. *Opuntia vulgaris*, our common Prickly Pear, bears an edible fruit. *O. cochinillifera*, (*Nopalea*,) the Nopal plant, is very largely grown for rearing the Cochineal insect, (*Coccus Cacti.*) The number of known genera is eighteen, and 800 species. *Cereus*, *Epiphyllum*, *Phyllocactus*, *Mammillaria*, *Melocactus*, *Pereskia*, etc., are examples of this order.

Caducous.—When a part falls off very early compared with other parts with which it is associated. Thus the sepals of many Poppies fall as soon as the flower begins to expand.

Cæsius.—A pale blue; a blue metallic luster seen on some leaves, as those of *Selaginella cæsia.*

Cæruleus or *Cæruleus.*—Blue; the clear blue of the sky.

Cæspitose.—Growing in little tufts or patches.

Calamariæ. — Fossil plants resembling weeds.

Calambac.—The commercial name of Aloes-wood, Eagles-wood, or Lign Aloes, which is produced by *Aloexylum agallochum.*

Calamus, (a Reed.)—This word has been restricted to hollow, inarticulate stems, like those of Rushes.

Calathida, *Calathus*, *Calathidium.*—The head of flowers borne by Composites; as, for example, the Aster.

Calcar.—A spur; a hollow process of some part of a flower.

Calcarate.—Spurred; having a spur.

Calcareous.—A dead or dull white, like chalk. Also growing in chalky places,

or having the substance of chalk, or carbonate of lime.

Calcariform.—Shaped like a calcar or spur. See *Calcar*.

Calceiform.—Formed like a little shoe, as *Cypripedium*.

Calceolate.—Having the form of a slipper or round-toed shoe, as in *Cypripedium insigne*, Venus's Slipper.

Calceous.—Dead white, like chalk.

Calicate.—Furnished with a calyx.

Calicinar.—When a flower becomes double by an increase in the number of lobes of the calyx or sepals.

Calicular.—A term of æstivation, (which see,) when the outer bracts of an involucre are much shorter than the inner.

Calli.—Small callosities or rough protuberances.

Callose.—Callous, hardened.

Calloso-serrate.—When serratures are callosities.

Callously-glandula. — Having hardened glands.

Callously-serrated.—Having hardened serratures.

Callus, (adj. *Callose.*)—A hardened part; anything which has acquired unusual hardness and toughness; also used in the sense of verruca, (which see,) meaning a wart; also the hymenium, (which see,) or fructifying surface of certain *Fungi*. This term is best known as used to denote the cambium that forms at the cut end of a slip or cutting before the roots appear, and heals the wound over. It has a granular or warty appearance, and hence the name.

Calvous.—Quite naked; bald; having no hairs, or other such processes.

Calybio, Calybium.—A hard, one-celled, inferior dry fruit, seated in a cupule; as, for example, an acorn or a hazel-nut.

Calycanthaceæ, (*Calycanths.*)—The Carolina Allspice family, a natural order of Calycifloral Dicotyledons belonging to Lindley's Rosal Alliance. Shrubs with square stems having four woody axes (which see) surrounding the central one, opposite entire leaves without stipules, and solitary lurid flowers. The calyx consists of numerous colored sepals compounded with the petals, and all united below with a fleshy tube bearing numerous stamens on its rim; the outer stamens open outwardly; the inner ones are barren. There are several ovaries, which are one-celled and adherent to the calycine tube; the ovules are one or two. The fruit consists of achenes inclosed by the calyx; the seeds are without albumen. The flowers have an aromatic fragrance. The plants are natives of North America and Japan. The bark of *Calycanthus floridus* (Carolina Allspice, Sweet-scented or Strawberry Shrub) is sometimes used as a substitute for Cinnamon. There are only two known genera, the *Calycanthus* of America and the *Chimonanthus* of Japan, the two containing six species.

Calycanths.—An English name for *Calycanthaceæ*.

Calyceraceæ, (*Boopideæ.*) — The *Calycera* family, a natural order of gamopetalous Calycifloral Dicotyledons included in Lindley's Campanal Alliance. They consist of herbs with alternate leaves without stipules, and with flowers collected in heads. The order occupies an intermediate place between *Compositæ* and *Dipsacaceæ*, differing from the former in their seed, which is pendulous and albuminous, as in *Dipsacaceæ*, and from the latter in their anthers being united around the style, as in Composites. They are natives of South America, but have no special

interest. *Calycera*, *Acicarpha*, and *Boopis* are examples of the order.

Calycine, Calycinal.—Of or belonging to a calyx; also a calyx of unusual size; or having the texture of a calyx.

Calycatus.—Furnished with a calyx; or where the calyx is large or remarkable.

Calyciform.—Formed like a calyx.

Calycoideous.—Resembling a calyx.

Calyculate.—When the flower appears as though it possessed a double calyx, as Myoseris.

Calyptra.—Literally, an extinguisher; applied to the body which tips the theca of a Moss, and the like; having a calyptra.

Calyptra, (adj. *Calyptrate.*)—The hood of an Urn Moss.

Calyx.—The most external of the floral envelopes; it is called adherent or superior when it is not separable from the ovary; free or inferior when it is separate from that part; and calyculate when it is surrounded at the base by bracts in a ring. Also the receptacle of some kinds of *Fungi*.

Calyculus.—A partial involucre, containing but one, or perhaps two flowers. Also the external bracts of a capitulum, (which see,) when they form a distinct ring or rings.

Calyptriformis.—Like a calyptra or an extinguisher, as the calyx of *Eucalyptus*.

Camara.—A carpel; the core of the Apple, etc.

Cambium.—The viscid fluid which appears between the bark and wood of Exogens, when the new wood is forming. Also the mucus of vegetation out of which all new organs are produced.

Campaniform.—Shaped like a bell; the same as *Campanulate*, which see.

Campanulaceæ, (*Campanulæ, Bellworts, Hare-bell* family.)—A natural order of

Calycifloral Gamopetalous Dicotyledons, and characterizing Lindley's Campanal Alliance. They are milky herbs or undershrubs, with alternate leaves, having no stipules, and usually bearing showy blue or white flowers. The calyx is above the ovary, (superior,) and is commonly five-cleft, persistent; the corolla regular, bell-shaped, and usually five-lobed, withering; stamens, five, distinct; style with hairs. The fruit is one or two-celled, or many-celled, the capsule opening by slits at the sides, or by valves at the apex; the seeds are numerous, albuminous, and attached to a central placenta. The plants are chiefly natives of the north of Asia, Europe, and North America, and are scarcely known in hot regions. The chains of the Alps, Italy, Greece, the Caucasus and the Altai, are their true homes. Several are found at the Cape of Good Hope. The species opening with lateral slits in the seed vessels are chiefly natives of the northern hemisphere; while those opening by valves at the top of their seed-vessels belong to the southern hemisphere. The plants have a milky, acrid juice, but the roots and young shoots are often cultivated as articles of food, as, for example, the Rampion, (*Campanula Rapunculus.*) There are twenty-nine known genera, and five hundred and forty species. Some of them furnish handsome flowers for the border. *Jasione, Phyteuma, Campanula, Adonophora*, and *Platycodon* are examples of the order.

Campanulate.—Bell-shaped, as the corolla of *Campanula*.

Campaniform.—The same as campanulate.

Camptotropal. — An orthotropal ovule, curved downward like a horseshoe, with the sides adherent. See *Orthotropal*.

Campylospermous.—When a seed or seed-like fruit is so rolled up as to have a furrow in the longer diameter of one side.

Campylotropal.—An ovule, one of whose sides grows much faster than the other, so that while the chalaza (which see) remains at the hilum, the foramen (which see) is brought nearly into contact with it.

Canaliculate.—Channeled or furrowed, like the petioles of many leaves.

Cancellate.—Latticed; resembling lattice-work; comprised of veins only, all the parenchyma or intervening web being absent; as where the single fibers, of which the whole plant of *Byssus cancellatus* is composed, cross each other.

Candidus.—A pure white; but not so clear as snow-white.

Canescens.—More or less gray, verging on white; grayish-white; hoary; a term applied to hairy surfaces.

Canescent.—Hoary; approaching to white.

Canker.—A rather indefinite term, used to denote a disease resulting in the slow decay of trees or other plants attacked by it.

Cannabinaceæ, (*Cannabineæ, Hempworts.*)—A natural order of Monochlamydeous Dicotyledons, belonging to Lindley's Urtical Alliance. They are rough-stemmed herbs with watery sap, alternate and lobed leaves with stipules, and small, inconspicuous flowers. The plants have some flowers with stamens without pistils, and others with pistils without stamens. The staminate flowers are in clusters called racemes or panicles; the calyx is herbaceous and scaly; the stamens are few and opposite the sepals; the filaments are filiform. The pistillate flowers are in spikes or cones, with a single sepal; the ovary is one-celled, and contains a solitary, pendulous ovule; there are two stigmas. The fruit is a single-seeded nut; the embryo is hooked or spiral, without albumen. The plants are natives of the temperate parts of the East Indies and Europe. They possess narcotic qualities and yield valuable fibers. *Cannabis sativa* yields the well-known Hemp, one of our most valuable fibers. It is imported in large quantities from Russia, and is produced in a small way in this country. The plant grows naturally in the cooler parts of India, and there develops narcotic qualities, which seem to reside in the resin which covers the leaves. What are called Hemp Seeds, used for the food of birds, are in reality Hemp fruits, each containing a single seed. *Humulus Lupulus*, the well-known Hop, possesses both tonic and hypnotic properties, that is, a power to produce sleep. The scales of the Hop heads are covered with resinous matter, which has an aromatic odor. There are but two known genera in the order, *Cannabis* and *Humulus*, and two species.

Cannaceæ.—The Indian Shot family, a natural order of Epigynous Monocotyledons belonging to Lindley's Amomal Alliance. The name of *Marantaceæ* is also given to the order. See *Marantaceæ.*

Canus.—Grayish white or hoary; a term applied to hairy surfaces.

Cap.—The convex part of an Agaric or other similar *Fungi.*

Capillaceous, Capillary.—Having the form of a thread; very slender; resembling a hair.

Capillaceous, Capillary.—Very slender, like a hair.

Capillary-multifid.—Divided into slender, hair-like segments.

Capillate.—Hairy, stringy.

Capillitium.—Entangled filamentary matter in *Fungi*.

Capillus, (adj. *Capillaris.*)—The breadth of a hair; the twelfth part of a line.

Capitate.—Having a head; pin-headed, as the stigma of the Primrose, or as certain hairs. Also, growing in a head, or close terminal clusters, as the flowers of *Compositæ*, etc. When a style is swollen at the apex, as if capped, it is said to be capitate.

Capitellate, Capitular, Capitulate.—Growing in small heads.

Capituli.—Small heads.

Capituliform.—Formed like a small head.

Capitulum.—A close head of sessile flowers. The term is also vaguely applied among *Fungi* to the receptacle, pileus, or peridium, which see.

Capparidiaceæ, (*Capparids.*)—A natural order of Thalamifloral Dicotyledons belonging to Lindley's Cistal Alliance. The order is composed of herbs, shrubs, or trees with alternate leaves and solitary or clustered flowers; there are four sepals, imbricate or valvate; four petals, arranged crosswise, sometimes eight; the stamens are usually numerous, and a multiple of four, placed at the top of a stalk-like receptacle; the disk is much developed. The ovary is usually supported on a stalk, and is one-celled, with parietal placentas. The fruit is either pod-like and opening, or berried; the seeds are often kidney-shaped, and without albumen. The order is divided into two sub-orders: *Cleomeæ*, with dry, dehiscent (splitting) fruit, and *Capparеæ*, with a berry fruit. The plants are chiefly tropical, and abound in Africa and India. Some are found in Europe and in North America. They have pungent and stimulant qualities, and have

been used for scurvy. The flower buds of *Capparis spinosa* furnish the well-known Capers. *C. Ægyptiaca* is thought by some to be the Hyssop of Scripture. There are thirty-three known genera and three hundred and fifty-five species. *Capparis, Cleome, Polanisia*, and *Cratæva* are examples of the genera.

Capparids.—Another name for *Capparidiaceæ*, which see.

Capreolus.—A tendril.

Caprification.—A fertilization of flowers by the aid of insects, as that of the Fig by a small fly.

Caprifoliaceæ, (*Lonicereæ, Caprifoils*, the *Honeysuckle* family.)—A natural order of gamopetalous (which see) Calycifloral Dicotyledons belonging to Lindley's Cichonal Alliance. They are shrubs or herbs, often twining, with opposite leaves which have no stipules; the calyx is adherent to the ovary, its limb four to five cleft, and usually with small leaves (bracts) at its base; the corolla is superior, regular or irregular; the stamens are four or five, alternate with the lobes of the corolla. The ovary is usually three to five celled, and the stigmas three or five. The fruit is generally a berry, with one or more cavities, and crowned with the calyx lobes; the albumen is fleshy. They are natives of the northern parts of Europe, Asia, and America, found sparingly in Northern Africa, and unknown in the southern hemisphere. Some are astringent, and others have emetic and purgative qualities. Many have showy and fragrant flowers. The common Honeysuckle (*Lonicera*) is one of the most esteemed of our climbing or twining plants. Among other plants of the order may be mentioned the Snowball or Guelder Rose, (*Viburnum opulus*,) the

Snowberry, (*Symphoricarpus racemosus,*) the Elder, (*Sambucus nigra,*) and the Laurustinus, (*Viburnum Tinus,*) as well as *Linnæa borealis.* The black berries of the species of *Viburnum* found on the Himalaya Mountains are eatable and agreeable.

Caprifoils.—The English name of *Caprifoliaceæ.*

Capsomania.—An unnatural development of pistils, which may consist of an excessive multiplication or of such a derangement as impedes their functions. In the first case the unusual demands for nutritive matter cannot be met, and the fruit becomes small and abortive; in the latter, as in green-centered Roses, bladder Plums, etc., the ovules, being imperfect, do not come to perfection.

Capsule.—Any dry, dehiscent (which see) seed vessel, with one or more cells. A spurious capsule is any dry seed vessel that is not dehiscent, or does not split open. Also employed to denote, among *Fungi,* certain kinds of receptacles.

Caput.—The peridium (which see) of certain *Fungi. Caput radicis* means the crown of a root; also, the very short stem, or rather bud, which terminates the roots of herbaceous plants.

Carageen or *Carrageen,* (Irish Moss.)—A name given in Ireland to *Chondrus crispus* and some other allied *Algæ.* Vast quantities are collected for sale, and supply a useful article for feeding cattle and making jelly for invalids. Its decided sea taste and odor are against its being a perfect substitute for isinglass. There is no doubt, however, that in the sick chamber it is a far better substitute than gelatine, as that has very small, if any nutritive qualities, a fact not perhaps sufficiently known.

Carcerule.—An indehiscent, many-celled, superior fruit, such as that of the Linden. Also employed among *Fungi* to denote their spore-cases.

Carcinodes.—A term applied to what is commonly called Canker in trees, which may be characterized as a slow decay, and in regard to which the Rev. M. J. Berkeley, an excellent authority, says: "The appearances are very different in different plants, and the causes different. The same plant, as the Apple, may even exhibit three or four different kinds of Canker. One form arises from the attack of the Woolly Aphis; a second from the development of bundles of adventitious roots, whose tips decay and harbor moisture, and contaminate the subjacent tissues; a third exhibits itself without any apparent cause, in the form of broad, dark, or even black patches, spreading in every direction; while a fourth shows pale, depressed streaks, which soon become confluent, and eventually kill, first the bark, and then, as a necessary consequence, the underlying wood. The only remedy is to cut out completely the affected parts, and that is not always efficacious. The Canker of the Plum and Apricot is brought on by gumming. In many cases, Canker arises doubtless from the roots penetrating into some ungenial soil, which vitiates the juices and induces death to the weaker cells, from which it spreads to surrounding tissue. The rugged appearance is generally due to a struggle between the vital powers of the plant and the diseased action."

Carcinoma.—A disease in trees when the bark separates, an acrid sap exuding and ulcerating the surrounding parts.

Carcithium.—The mycelium (which see) of certain *Fungi.*

Carcytes.—The same as mycelium, which see.

Caries.—A word used in vegetable pathology to denote decay of the walls of the cells and vessels, whether attended by a greater or less degree of moisture.

Carina, (adj. *Carinate.*)—A keel like that of a boat; the two anterior or lower petals of a papilionaceous flower, the three anterior in a Milkwort, etc. Also, the thin, sharp back of certain parts, as that of a glume of *Phalaris,* etc.

Carinate.—Keel-shaped. See *Carina.*

Carinately-concave.—Hollowed, so as to resemble a keel externally.

Carinately-winged.—Having a wing like a keel.

Carinato-plicate.—So plaited that each fold is like a keel, as in the peristome (which see) of some Urn Mosses.

Cariopsis.—A one-celled, one-seeded, superior fruit, whose pericarp is membranous and united to the seed, as in Wheat, Maize, and other kinds of grain.

Carneus.—Pale red, or flesh-color.

Carnose, Carnosus.—Fleshy.

Carious.—Decayed.

Caro.—The fleshy part of fruit, or that which is edible. Also, the flesh or tissue of which *Fungi* consist.

Carpadelium.—An inferior, indehiscent, (which see,) two or more celled fruit with solitary seeds, and carpels which, when ripe, separate from a common axis, as in Umbellifers.

Carpet Bedding.—See *Bedding.*

Carpel, Carpella, (adj. *Carpellaris.*)—One of the rolled-up leaves of which the pistil is composed, whether they are combined or distinct; the small parts of which compound fruits are formed.

Carpoclonium.—A free case or receptacle of spores found in certain *Algæ.*

Carpology.—That part of botany which

treats of the structure of fruits and seeds.

Carpomania.—A term used to denote the grittiness of Pears, Quinces, Medlars, etc.; a condition which always exists, and cannot be altogether removed by cultivation, though it may make the fruit more juicy. Grittiness depends on the deposit of layer after layer of new matter within certain cells till they become hard. In the warm climate of Italy Quinces are often so full of these cells as to become uneatable.

Carpomorpha.—Those parts in cryptogamic plants which resemble true fruits without being such receive this name, as the spores of Lichens.

Carpophorum.—The stalk of the pistil above or beyond the stamens.

Carpophyllum.—The same as carpel, which see.

Carpopodium.—A fruit stalk.

Carpoptosis.—This term is used in reference to the sudden arrest of growth and falling off of fruit and grain after impregnation has taken place, and more or less growth has been made. This result will sometimes happen in consequence of more fruit setting than the plant is able to nourish; and in other cases the growth of the plant will be so vigorous as to divert the flow of the sap from the fruit, and, in consequence, it falls off or fails to mature; a matter of very common occurrence in both fruits and flowers. There are, doubtless, other causes for the falling of fruit aside from insects, which are not yet well understood.

Carpostomium.—The opening into spore cases of Algæ.

Cartilaginous.—Hard and tough like the skin of an apple-seed or a piece of parchment.

CAR

Caruncula, (adj. *Carunculate, Caruncular.*)—A wart or protuberance round or near the hilum (which see) of a seed.

Caryophyllaceæ, (*Sileneæ, Alsineæ, Queriaceæ, Minuartieæ, Molugineæ, Steudeliæ, Silenads, Cloveworts*, the *Chickweed* family.)—A natural order of Thalamifloral Dicotyledons belonging to Lindley's Silenal Alliance. The plants of this order are herbs with stems swollen at the joints, entire and opposite leaves, and a definite (cymose) inflorescence; the sepals are four to five, separate or cohering; the petals are four to five, with narrow claws, which are sometimes wanting; the stamens are usually as many or twice as many as the petals. The ovary is often supported on a stalk, (gynophore, which see,) usually one-celled, with a free central placenta; the styles are two to five, with papillæ on their inner surface. The fruit is a capsule, opening by two to five valves, or by teeth at the apex, which are twice as many as the stigmas; the seeds are usually indefinite; the embryo is curved round mealy albumen. There are three sub-orders, viz.: 1. *Sileneæ*, the Pink tribe, with united sepals opposite the stamens, when the latter are of the same number. 2. *Alsineæ*, the Chickweed tribe, with separate sepals, bearing the same relation to the stamens as in *Sileneæ*. 3. *Molugineæ*, the Carpet-weed tribe, in which the petals are wanting, and the stamens are alternate with the sepals when of the same number. The plants of this order are natives principally of temperate and cold regions. They inhabit mountains, rocks, hedges, and waste places. Humboldt says that Cloveworts constitute a twenty-secondth part of the flowering plants of France, one twenty-seventh of those of Germany, one

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seventeenth of Lapland, and one seventy-secondth of North America. The order has no very marked properties. There are some very showy flowers in the order, such as the well-known and popular Pinks and Carnations; but the greater number are mere weeds. The Clove Pink (*Dianthus Caryophyllus*) is the origin of all the cultivated varieties of *Carnations*, as Picotees, Bizarres, and Flakes. The common Chickweed (*Stellaria media*) and Spurry, (*Spergula arvensis*,) the latter used as fodder for sheep, are other examples. There are about sixty genera and 1,100 species. *Dianthus, Silene, Lychnis, Cerastium, Arenaria, Alsine, Saponaria*, are examples of this order.

Caryophyllaceous, Carophyllatus.—A corolla whose petals have long, distinct claws, as in the Clove Pink.

Cassideous.—Having the form of a helmet; as the upper sepal in the flower of an Aconite.

Castratus.—When an important part is missing, as in the case of filaments which have no anthers.

Casuarinaceæ.—A group of about a score of species of jointed, leafless trees or shrubs which, in their striated internodes and toothed-ribbed sheaths, have some resemblance to *Equisetums*, while in other respects they are allied, in some measure, to *Ephedra* and the *Coniferæ*, under which they were formerly classed, and still more with *Myricaceæ* and other amentaceous groups, near to which they are now placed as a small, distinct family. Their flowers are unisexual, the males, in distinct whorls, forming a cylindrical spike; each stamen is inclosed in four scale-like leaflets, the two outer ones considered as bracts, persistent at the base of the stamen, while the two inner

ones, or sepals, firmly cohering at the tips, are carried upward by the anthers as the filament is produced. The female flowers are in dense axillary heads without any perianth. The ovaries, sessile within the bracts of the head, are one-celled, with a single ascending ovule, and bear two styles united at the base; the winged nuts are collected in a cone hidden under the thickened bracts. The *Casuarinas* are natives of Australia, New Caledonia, and the Indian Archipelago.

Cataclesium. — A one-celled, one-seeded fruit inclosed within a hardened calyx, as in Mirabilis.

Catapetalous.—Having the petals slightly united by their inner edge near the base, as in the Mallow. A form of polypetalous, which see.

Catenulate.—Formed of parts united end to end, like the links of a chain.

Catkin.—A deciduous spike, consisting of unisexual apetalous flowers; an amentum, which see. The flowers of the Willow, Hazel, etc., are Catkins.

Catulus.—A catkin or amentum, which see.

Cauda.—Any long, soft, narrow terminal appendage resembling a tail, as that of the corolline lobes of *Strophanthus* or the lateral sepals of *Cypripedium caudatum.*

Caudatus, Caudate.—Tailed, or having a long terminal appendage. See *Cauda.*

Caudex.—The axis of a plant, consisting of the stem and root. Applied also to the trunk of Palms and Tree Ferns. *Caudex repens* is a creeping stem, or what is now called a rhizome. *Caudex descendens* is the root.

Caudicula.—The cartilaginous strap which connects certain kinds of pollen masses to the stigma, as in *Maxillaria.*

Caulescent.—Acquiring a stem.

Caulicle.—A portion of the axis intermediate in structure and position between the true root and stem, and called the hypocotyledonary axis; the space between the radicle and cotyledons.

Caulicule.—The little stem of the embryo which unites the cotyledons with the radicle.

Cauligenous.—Arising from a stem.

Cauline.—Of or belonging to the stem. *Cauline stipules* are such as adhere to the stem as much as to the petiole or leaf.

Caulis.—The stem or ascending axis; a name given only to the part in its customary state, growing in the air. *Caulis deliquescens,* a stem which at a distance above the earth breaks into irregular ramifications, as in the Oak. *Caulis excurrens,* a stem which shoots straight from the ground to the summit, having branches on the sides, as in *Abies.*

Caulocarpous.—A stem which lives many years, repeatedly bearing flowers and fruit; as a shrub or tree.

Cauloma.—The stem of a Palm Tree; the stem-like portion of the thallus (which see) of such *Algæ* as some *Fuci.*

Caulon.—In Greek words equivalent to *stem.*

Cavernuli.—The pores of certain *Fungi.*

Cavus.—Hollow, full of holes. The peridium (which see) of certain *Fungi. Cavus superus* is the hymenium (which see) of certain *Fungi.*

Cedrelaceæ, (*Cedrelads,* the *Mahogany* family.)—A natural order of Thalamifloral Dicotyledons belonging to Lindley's Rutal Alliance. The order consists of trees with alternate pinnate leaves, without stipules. The flowers in panicles; the calyx four to five cleft; the petals four to five; the stamens eight to ten, inserted on a disk. The ovary is three to five celled. The fruit is a capsule opening by valves,

which separate from a thick axis; the seeds are numerous, flat, winged, and anatropal, that is, with the opening near the hilum, (which see,) and the chalaza (which see) at the opposite end. There are two sub-orders, viz.: *Swieteniæ*, with the filaments of the stamens united. 2. *Cedreleæ*, in which the filaments are not united. They are natives of the tropics of America and India, and very rare in Africa. The plants of this order are generally fragrant, aromatic, and tonic. Many supply compact, beautifully-veined timber, such as the well-known Mahogany of tropical America, (*Swietenia Mahagoni,*) the Satin-wood of India, (*Chloroxylon Swietenia,*) the Yellow-wood of New South Wales, (*Oxleya xanthoxyla,*) the Red-wood of Coromandel, (*Soymida febrifuga,*) and the Toon of India, or Simal-Kun of the Lepchas, (*Cedrela Toona.*) A kind of oil is procured from Satin-wood, and the barks of *Cedrela febrifuga*, as well as the Mahogany Tree, and others, are used medicinally in intermittent fevers, etc. There are nine known genera and twenty-five species. *Swietenia*, *Cedrelea*, *Flindersia*, and *Soymida* are examples of the order.

Cedrelads.—The English name for *Cedrelaceæ.*

Celastraceæ, (*Celastrineæ*, *Spindle Trees.*)—A natural order of the Calycifloral Polypetalous Dicotyledons belonging to Lindley's Rhamnal Alliance. The order consists of shrubs or small trees with alternate, rarely opposite simple leaves, having stipules which fall off. The flowers are in axillary cymes, and are small, either green, white, or purple; the sepals and petals are four to five, imbricate, the petals being sometimes wanting; the stamens are four to five, inserted on a

large disk, which surrounds the ovary and incloses it. The fruit is two to five-celled, capsular or drupaceous, (cherry-like;) the seeds usually with an aril, (which see,) albuminous, with a large, straight embryo. The plants are natives of the warmer parts of Europe, North America, and Asia, and far more abundant beyond the tropics than within them. There are two sub-orders, viz.: *Euonymeæ*, the fruit dry and capsular. 2. *Elæodendreæ*, the fruit drupaceous or cherry-like. They are more or less acrid in their properties, and some yield oils. The Spindle Trees have a beautiful scarlet aril, (which see,) which is derived from the sides of the opening in the seed. The species of *Euonymus* in America, from their crimson capsules and arils, are called Burning Bush. *Celastrus scandens*, which is common in our woods, is often called Wax-work. The wood of the European Spindle Tree is used in France for making a coarse gunpowder. There are thirty-five known genera and two hundred and eighty species. *Celastrus*, *Euonymus*, and *Elæodendron* are examples of this order.

Cella.—A name sometimes given to a form of the *perithecium* (which see) among *Fungi.*

Cells, Cellules.—Cavities in the interior of a plant. The cells of tissue are those which form the interior of the elementary vesicles. Cells of the stem, air-cells, etc., are spaces organically formed by a peculiar building up of tissue for various vital purposes.

Cellular.—Composed of cells.

Cellulares.—A name given to Cryptogamiæ, from an idea that they consist entirely of cells; but it is now known that vascular tissue exists in many of the higher forms.

CEL

Cellular System.—That part of the plant which consists of cells or elementary vesicles.

Cellulose.—The primitive membrane, free from all deposits of sedimentary or other matter.

Celsus.—Upright, stately, tall.

Cenobium, (adj. *Cenobionar*, *Cenobioneus.*)—Such fruits as those of Labiates, Borage-worts, etc., which consist of several distinct lobes, not terminated by a style or stigma.

Central Placenta.—A column in the center of fruits to which the seeds are attached.

Centrifugal.—A term applied to those kinds of inflorescence which, like the cyme, (which see,) flower first at the point or center, and last at the base or circumference.

Centripetal.—A term applied to those kinds of inflorescence which, like the spike or capitulum, (which see,) flower first at the base or circumference, and last at the point or center.

Centron or *Centrum.*—In Greek compounds equivalent to calcar, a spur.

Cephalanthum.—The capitulum or flower head of Composites.

Cephalium.—A peculiar woolly enlargement of the apex of the stem of *Melocactus*, among whose hairs the flowers appear.

Cephalodium.—A knob-like shield, such as occurs in the genus *Scyphophorus.* Also, the capitulum or flower heads of Composites.

Cephalophorum.—A term employed among *Fungi*, sometimes to denote their receptacle, sometimes their stipe.

Cephalotaceæ. — The Australian Pitcher Plant, *Cephalotus follicularis*, a very curious herb, with radical leaves mingled with pitchers, is a plant of very doubtful affinity. It has been considered provisionally as a distinct family, bearing the name Cephalotaceæ. It has been compared with *Rosaceæ*, *Crassulaceæ*, and *Ranunculaceæ;* but, according to the latest authorities, (Bentham and Hooker,) it is now classed with the *Saxifragaceæ.*

CHA

Cephalum.—In Greek compounds equivalent to the head or terminal mass, or thickened end of anything.

Ceraceus, Cereus.—Having the consistence or appearance of wax.

Cercidium.—The mycelium or spawn of certain *Fungi.*

Cereals.—A term applied to all edible grains.

Cerinus.—The color of yellow wax.

Cerium, Cerio.—The same as Caryopsis, which see.

Cernuous.—Inclining a little from the perpendicular; generally applied to drooping flowers; nodding, drooping, or pendulous.

Cervinus, Cervine.—Dark tawny, such as the dark part of a lion's hide; deep yellow with much gray.

Chæta.—A bristle. The slender stalk of the spore cases of Mosses; also called Seta, which see.

Chaff.—Small membraneous scales, the degenerated state of bracts. See *Paleaceous.*

Chailletiaceæ.—A family of Dicotyledons belonging to Lindley's Rhamnal Alliance, differing from *Celastraceæ* in their usually notched petals, in the five distinct glands which take the place of the perigynous (which see) disk, and generally in the want of albumen to the seeds. They are remarkable also for the great tendency of the peduncles to combine with the petioles, so that the flowers, which are really axillary, appear to spring from the leaf itself at the summit of the petiole. The flowers are small, in paniculate cymes or compact clusters. There are usually five

sepals, petals, and stamens, regularly alternating with each other; but these numbers are, in one genus, (*Tapura,*) irregularly reduced. The ovary is superior, with two or three cells, and two pendulous ovules in each cell; the style is simple; the fruit a rather dry drupe with one to two seeds. There are nearly twenty species, natives of tropical regions, and dispersed over both continents. *Chailletia, Moacarra,* and *Tapura* are examples of the order.

Chalaza, (adj. *Chalazinus.*)—A spot on the seed, indicating where the vessels of the raphe (which see) terminate. That part of the seed where the nucleus joins the integuments; it represents the base of the nucleus, and is invariably opposite the end of the cotyledons.

Channeled.—Hollowed out, so as to resemble a gutter; as in the leaves of *Tradescantia Virginica.*

Channel-leaved.—Folded together so as to resemble a channel for conducting water.

Characeæ.—A small natural order of Acrogens, consisting of two, or at most three genera. The species are all aquatic, and are found in almost all parts of the world, but are most common in temperate countries. The species are either monœcious or diœcious, the two kinds of fruit being often seated close to each other. The genera *Nitella* and *Chara* are examples of the order.

Character.—A short phrase expressing the essential marks by which a given plant or group of plants is distinguished from others. A specific character distinguishes one species from other species, and so on.

Chartaceous.—Thin, flexible, and membraneous, resembling paper or parchment, as the pericarp of *Anagallis arvensis.*

Chenopodiaceæ, (*Chenopods,* the *Goose-foot* family.)—A natural order of Monochlamydeous Dicotyledons, characterizing Lindley's Chenopodal Alliance. Herbs or undershrubs, with alternate, sometimes opposite leaves, without stipules, and small flowers, which are sometimes unisexual, that is, have stamens and pistils in separate flowers. They are inconspicuous plants, found in waste places in all parts of the world, but abounding in extra-tropical regions. Some of them are used as pot-herbs, as, for instance, Spinach, (*Spinacia oleracea,*) Orach, (*Atriplex hortensis,*) Beet, (*Beta vulgaris,*) and others. The Mangel-wurzel is a variety of Beet used for the food of cattle. The Beet is cultivated in France and the United States for the manufacture of sugar. Some of the plants of this order yield soda, and others supply essential oils. The seeds of *Chenopodium Quinoa* are used as food in Peru. They abound in starch, but have a bitterish taste. The seeds of *Chenopodium Bonus Henricus* are used in the manufacture of shagreen. There are seventy-four known genera and 533 species. *Salicornia, Spinacia, Beta, Chenopodium,* and *Atriplex* are examples of this order.

Chenopods.—The English term for *Chenopodiaceæ.*

Chermesine.—A kind of crimson.

Chlænaceæ.—A small family consisting of only four genera of one or two species each, all from the island of Madagascar, and as yet but very imperfectly known.

Chloranthaceæ.—A small family of Dicotyledons, with flowers of a very simple structure, allied to those of *Piperaceæ* and *Saururaceæ.* They are trees, shrubs, or rarely herbs, with opposite leaves, connected by sheathing stipules. The mi-

nute flowers are in simple or branched terminal spikes, often articulate, as in *Gnetum*. There are but very few species, all tropical, and contained in two genera, *Chloranthus* in Asia and *Hedyosmum* in America.

Chloranthia.—A monstrous development of the floral organs, where they become more or less green, and partially assume the character of leaves, as in Roses, Dahlias, etc.

Chloro. — In Greek compounds chloro means *green*.

Chlorochrous.—Having a green skin.

Chlorophyl.—The green resinous coloring matter of the leaves and other parts, consisting of minute grains, lying loosely in the cells of the tissue.

Chlorosis.—A disease to which plants are subject, and often admitting no cure. It consists in a pallid condition of the plant, in which the tissues are weak and unable to contend against severe changes, and the cells are more or less destitute of chlorophyl. It is distinct from blanching, as it is also from the white color in ornamental-leaved plants, of which, however, it may be a modification. Plants may be affected by chlorosis as soon as the cotyledons make their appearance. The best culture will not always restore such plants to health. The most promising remedy is to water them with a very weak solution of sulphate of iron. An example of this condition is to be found in cases where the variegated leaves of Pelargoniums, etc., run to pure white without any green. In all such cases death is certain to ensue, unless the leaves again become more or less green.

Chlorospermeæ.—One of the three great divisions of *Algæ*, characterized by the green color of the spores. See *Algæ*.

Chorda Pistillaris.—A line of tissue reaching from the stigma down to the cavity of the ovary.

Chorion.—A carpel; also the pulpy matter which fills the interior of a young seed before impregnation.

Choristophyllous.—Separate leaved.

Chromatidium.—The coloring matter of plants.

Chromism.—A preternatural coloring of plants, as that of leaves when they become red, etc.

Chromule.—The fluid coloring matter of vegetation.

Chrysaloideus.—Rolled up and folded up at the same time.

Chrysanthus.—Yellow flowered.

Chryso.—In Greek compounds chryso is equivalent to *golden yellow*.

Chrysobalanaceæ.—A family of Dicotyledons closely allied to *Rosaceæ*, or more generally considered as a tribe of that order taken in its most extended sense. They are distinguished from the other tribes by a frequent irregularity in the stamens, and more especially by their solitary carpels, with the style always proceeding from the base, and containing two ascending ovules. The fruit is free, either drupaceous or capsular. There are twelve genera and nearly a hundred known species.

Chrysochrous.—Having a yellow skin.

Cicatricule.—The scar formed by the separation of a leaf from its stem.

Cicatrisate, Cicatricose.—Marked with scars.

Cicatrix, Cicatrice.—Any kind of scar formed by the separation of one part from another.

Ciliæ.—Somewhat stiffish hairs, which form a fringe on the margin of an organ, as those on the leaf of *Sempervivum tectorum*.

CIL

Ciliated.—Margined with hairs.

Ciliary-scabrous.—Having rough ciliated margins.

Ciliately-toothed.—The same as ciliato-dentate, which see.

Ciliately-plumose.—Having long hairs on the margin like the feathers of a quill.

Ciliato-dentate. — Toothed and fringed; when the teeth of anything are finely serrated as if fringed.

Cilio-serrate.—When the serratures of anything end in a hair.

Cimicine.—Smelling of bugs, as Coriander.

Cinchonaceæ, (*Rubiaceæ, Cinchonads,* the *Peruvian Bark* family.)—A natural order of gamopetalous (which see) Calycifloral Dicotyledons, characterizing Lindley's Cinchonal Alliance. The order is sometimes considered as a sub-order of the natural family of *Rubiaceæ,* or Madderworts. The order consists of trees, shrubs, or herbs, with simple opposite leaves, having glandular stipules placed between the bases of the leaf-stalks, (interpetiolar,) and flowers arranged in panicles or corymbs. The calyx is adherent, entire, or toothed; the corolla is irregular; the stamens are attached to the corolla. The ovary is two-celled; style one. The fruit is inferior, either dry or succulent, splitting into two, or not opening; the seeds are either definite in number, or numerous, containing a small embryo in horny albumen. They are found chiefly in tropical regions, where they constitute about one twenty-seventh of the flowering plants. The plants furnish many important products. They supply remedies for intermittent fevers, some are emetic and purgative, while others act in strengthening the tone of the stomach. The famous Peruvian Bark or Quinine is yielded by species of *Cinchona,* which

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grow in the Andes, between three thousand and nine thousand feet above the level of the sea. *Coffea Arabica* supplies Coffee, which is the hard albumen of the seeds. From *Cephaëlis Ipecacuanha* we get the well-known Ipecacuan root, so commonly used as an emetic. Among flowering plants may be mentioned the Gardenias, well known for their delicious fragrance, and also the Ixoras. *Cinchona, Coffea, Cephaëlis, Ixora, Pentas, Gardenia, Mussænda,* are examples of this order.

Cinchonads.—An English term for *Cinchonaceæ.*

Cinctus.—A term applied to albumen when surrounded by an annular embryo.

Cinenchyma.—That kind of tissue in which latex, (which see,) or the proper juice of plants, is supposed by some to be conveyed from place to place. It is probably a form of the intercellular passages.

Cinereous, Cineraceous.—Ashy gray; a mixture of white and black.

Cinerously-canescent.—Between white and ash-colored.

Cinerously-glaucous. — Between sea-green and ash-colored.

Cinerously-pubescent.—Covered with gray pubescence.

Cinnabar.—Scarlet touched with orange.

Cinnabarinous.—The same as Cinnabar.

Cinnamomeus.—The color of cinnamon.

Circinal.—Resembling a circle.

Circinalis, Circinate.—Bent like the head of a crosier, as in the young leaf of a Fern when it begins to grow.

Circinately-revolute.—Curled round like a circle.

Circumpositio.—A technical term for what gardeners call a layer, a branch laid into the ground, or layered, in order that it may strike root. See *Propagation.*

Circumscissile, Circumscissus.—Cut circularly around the sides, as in some seed-vessels.

Circumscriptio.—The outline of anything.

Circumsepientia folia.—A term applied to leaves when they rise up like a funnel, and surround the stem as if to protect the young shoots, as in the Marvel of Peru. The term is rarely used.

Cirrhose or *Cirrhous.*—Either furnished with a tendril, as the Grape-vine or the leaves of *Gloriosa superba;* or assuming the form and functions of a tendril, as the peduncles of *Clematis cirrhosa;* or where the tendrils are in some way remarkable, as the ascidia cirrhalia of *Nepenthes.*

Cirrhiferous.—Bearing a tendril.

Cirrhiform.—Shaped like a tendril.

Cirrhis.—A tendril; a slender, twining organ by which a plant climbs.

Cirrhositas.—The production of tendrils.

Cistaceæ, (the *Rock Rose* family.)—A natural order of Thalamifloral Dicotyledons, characterizing Lindley's Cistal Alliance. They are shrubs or herbs, often viscid, with simple entire leaves and showy flowers. There are three to five sepals, which are persistent and unequal, the three inner being twisted in the bud. There are five petals, rarely three, falling off, often crumpled, and twisted in an opposite direction from the sepals. The stamens are numerous, not united. The fruit is a one-celled capsule with parietal placentas, or imperfectly three to five-celled with central placentas. Seeds with mealy albumen; embryo curved or spiral. The plants are found chiefly in the south of Europe and the north of Africa, and rarely in North or South America. They are usually resinous, and have a balsamic fragrance. *Helianthemum vulgare,* the common Rock Rose of England, has remarkably irritable stamens, which in sunny weather move on being touched. There are eight genera and about one hundred and ninety species. *Cistus, Helianthemum, Fumana,* are examples of this order.

Cistella, Cistula.—A cell-like shield found among Lichens in the genus *Sphærophoron.*

Cistome.—A membraneous sac which, according to some, penetrates stomates, (which see,) and reaches the bottom of the subjacent chamber. If this statement be correct, the cistome must be a fold of the cuticle.

Cistophorum.—The stipe of certain *Fungi.*

Cistusrapes.—A name given by Lindley to the group of Cytinaceous parasites.

Citreous, Citrinous.—Lemon-colored.

Citronworts.—A name given by Lindley to the family of *Aurantiaceæ,* to which the Orange and Citron belong.

Clados.—In Greek compounds this word means *a branch.*

Clathrus.—A lattice; a membrane pierced with holes and forming a kind of grating, as in the leaves of *Ouvirandra fenistralis.*

Clathrate.—Latticed; divided like lattice-work.

Clausile.—A name given by Richard to his macropodal (which see) embryo when its radicle is united by the edges and entirely closes all the rest of it.

Clavate, Clavatus, Claviformis.—Club-shaped, as where any organ, slender at the base, gradually enlarges towards the apex, as the filaments of *Thalictrum clavatum.*

Clavellose.—Clubbed, or having club-like processes.

Clavicula.—A tendril.

Clavula.—The receptacle or spore-case of certain *Fungæ.*

Clavus.—The disease which produces ergot

in grasses; so called because it causes the young grain to grow into the form of a nail or club.

Claw.—The long narrow base of some petals, analogous to the footstalk of leaves, as in Dianthus.

Clestines.—Large cells of parenchyma, in which raphides (which see) are often deposited.

Cleft.—Divided, but not to the base; split.

Cliffortiaceæ.—A name sometimes given to *Rosaceæ* proper, including *Sanguisorbeæ*, as distinguished from *Amygdalaceæ* and *Pomaceæ*.

Climber.—A plant that grows upright upon trees, walls, etc., and supports itself by tendrils or by air-roots; an example of the former being the Grape Vine, (*Vitis,*) and of the latter the Virginia Creeper, (*Ampelopsis.*)

Clinandrium.—The bed of the anther of Orchids; an excavation of the top of a column, in or on which the anther lies.

Clinanthium.—A flat or broad space on which flowers are packed closely; the receptacle of Composites; a shortened, widened axis.

Clinium.—In Greek compounds this word means *receptacle.* It also denotes an accessory part of certain Fungi, consisting of very small, long, simple or branched cells, bearing a spore at their end.

Clouded.—When colors are unequally blended together.

Cloves.—The small bulbs formed within the mother-bulb of certain plants; such as garlic.

Cloveworts.—A name sometimes used for *Caryophyllaceæ*, to which the clove Gilliflower belongs.

Club Root.—A disease of the most destructive character, which frequently attacks Cabbage, Cauliflower, and other plants

of the Brassica tribe. There is a great deal of misconception as to what is the cause of Club Root, it being attributed variously to wet land, dry land, hog manure, and several other causes that have got nothing to do with it whatever. All observing horticulturists who have had experience in the cultivation of Cabbage or Cauliflower, in any vicinity where there is an oyster-shell deposit, know that the Club Root is never seen in any soil wherein there is an admixture of oyster shells. Thousands of acres on the shores of the Atlantic coast, on Long Island and in New Jersey, have just such soils, and there Cabbage crops have been grown for upward of fifty years successively without a sign of this disease; while in other soils, only a few hundred yards distant, but having no mixture of oyster shell in the soil, it is found that Cabbages cannot be grown successively on the same soil without being attacked by Club Root. The inference is, therefore, plain, that the insect causing the disease called Club Root cannot exist in contact with the lime of the oyster shell; for that the disease is caused by an insect is well proven, as it is found that the excrescence known as Club Root, when examined, is found to contain a small, whitish, grub-like larva. It is evident that the growing crop of Cabbage invites in some way the perfect insect; for it is found, that if Cabbage is planted for the first time on new soil, it is rarely attacked by Club Root, while if planted the next year on the same soil, if lime is not present, it is almost certain to be attacked; and for this reason it is fair to presume that the perfect insect, allured by the Cabbage crop, deposits its eggs in the soil, which remain undeveloped un-

til the next season, when they are hatched and attack the *roots* of the Cabbage plants, and thus bring on the disease. As an evidence of the correctness of this belief, we never fail to find, for example, if we plant alongside of each other, a crop of Cabbage and a crop of Potatoes or Beets, that if the succeeding year we plant the whole with Cabbage, the part only that was planted with Cabbage the year before will be affected by Club Root, and the parts planted with Potatoes or Beets will escape. From our experience that Cabbage planted in soils mixed with oyster shells is exempt from Club Root, it is evident that the lime in the oyster shells is the agent destructive to the insect; therefore, in soils having no oyster shells, we have found, if air-slacked lime is put on at the rate of 150 bushels to the acre after plowing, and well harrowed in, so as to mix it with the soil, that it in most cases will destroy the larvæ which causes Club Root. We have also found, from its containing large quantities of lime, that Bone Dust, used as a fertilizer at the rate of one to two tons per acre, is another almost certain antidote against Club Root. We would advise the use of lime after fall plowing, but the Bone Dust should only be put on before the crop is *planted* in spring.

Club-shaped.—The same as Clavate, which see.

Clusiaceæ.—The Gamboge family, a natural order belonging to Thalamifloral Dicotyledons, usually called *Guttiferæ*, which see.

Clustered.—Where numerous similar parts are collected in a close, compact manner, as in the flowers of *Cuscuta.*

Clypeate.—Having the form of an ancient buckler, the same as Scutate, which see.

Coacervate.—Gathered together in a round mass; the same as clustered, which see.

Coadnate, Coadunate.—The same as connate, which see.

Coagulans.—Congealing together.

Coalitio.—The growing of one thing to another; as when petals grow together to form a monopetalous corolla.

Coarctate.—Contracted, or drawn close together.

Coarcture.—The neck of a plant. See *Collum.*

Coated.—Where the external parts are harder than the internal; or are composed of a distinct layer, as the bark on the trunk, the rind of fruit, etc.

Cobwebbed.—Covered with loose, white, entangled, thin hair, resembling the web of a spider, as in *Sempervivum arachnoideum* and other plants.

Coccidia.—A peculiar form of the conceptacles (which see) in the rose-spored *Algæ*, which consists of globur tubercles with a cellular wall continued from the substance of the frond, whether partly confluent with it or free, and not opening in general by a terminal spore, as in *Rhodymenia* and *Gracilaria.* The elongated processes in such *Algæ* as *Gigartina mammillosa* are called tubercles. In this species at least there is a pore for the exit of the spores.

Coccineus.—A pure carmine color, slightly tinged with yellow.

Coccodis.—Resembling pills; consisting of spheroidal granulations.

Coccus.—A shell; a carpel, which separates with elasticity from an axis common to itself and others, as in *Euphorbia, Ricinus,* etc.

Cochlear.—A term used in describing æstivation, (which see,) when one piece, being larger than the others and hollowed

like a helmet or bowl, covers all the others, as in *Aconitum*.

Cochleate.—Twisted in a short spire, resembling the convolutions of a snail-shell, as the pod of *Medicago cochleata*, or the seed of *Salicornia*.

Cochlidiospermate.—Seeds that are convex on one side and concave on the other, owing to unequal growth or anomalous structure, as in *Veronica*.

Codiophyllus.—Where the leaf is covered with a woolly pubescence.

Cœruleus.—The same as Cæruleus, which see.

Cæsius.—See *Cæsius*.

Cohering.—Connecting.

Cohesion.—The union or superficial incorporation of one organ with another.

Cold Frame.—This is the term used for the low glass structure in use for protecting such plants as are not sufficiently hardy to withstand the winter in the Northern States. They are used to protect Cabbage, Cauliflower, Lettuce, Parsley, etc., among vegetables, and Violets, Pansies, Daisies, Primroses, Carnations, Auriculas, etc., among flowers. The boxes or frames used are simply two boards, running parallel with each other, and nailed to posts to secure them in line, the one at the back or north side being ten to twelve inches in height, and that for the front, or south side, being seven or eight inches, which gives pitch enough to carry off the rain and to catch the sun's rays. The width between these lines of boards should be enough to take the length of a six-foot sash, which is the most convenient size. All the plants of the character above named can be protected in the district of New York, where the thermometer rarely falls lower than 8° below zero, with the glass alone; but in colder sections the protection of light

shutters in addition, over the glass, will be necessary. In the Southern States, in districts where the thermometer never falls lower than 15° above zero, many of the hardier green-house plants, such as Fuchsias, Geraniums, Azaleas, Camellias, Verbenas, Abutilons, etc., may be kept equally well in cold frames, as our so-called hardy plants are kept at the North.

Cold Pits.—Are identical with cold frames, except that an excavation of from two to four feet is made below the general level of the ground, so as to admit of larger plants being placed in them. The sunken pit, however, is a better protection than the cold frame on the surface; for, when sunk to the depth of two or three feet, and covered with glass, it will resist a much heavier frost than the frames on the surface. Care must be taken that both cold frames and cold pits are well drained, either from the nature of the soil or otherwise, as water standing in them would be destructive to the plants, whether planted in the soil or growing in pots.

Coleophyl or *Coleoptile.*—The first leaf which follows the cotyledons in Endogens, and ensheaths the succeeding leaves.

Coleorhiza.—The sheath formed at the base of an endogenous embryo, where it is pierced by the true radicle.

Colesula.—The small bag which contains the spore-case of Liverworts.

Collar.—The ring upon the stipe of an Agaric. See *Collum*. Also applied to the neck or line of junction between the root and stem of a tree, etc.

Collare.—The ligule or transverse membrane that stands in grasses at the junction of the blade and the sheath of the leaf.

Collateral.—Standing side by side.

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Collapsion.—The act of closing or falling together.

Collectors.—The hairs found on the style of such plants as the *Campanula*, and which collect or brush out the pollen from the anthers.

Collemaceæ.—A natural order of Lichens, distinguished principally by their gelatinous substance, and the green globules which are so distinctive a mark of Lichens in general, forming necklace-like threads. They are found in various parts of the world. They attract little notice when dry, but a few hours' rain swells them out into beautiful objects. One of the most curious genera is *Myrangium*, found in the south of England, Algeria, Australia, and the United States. It grows on the trunks of living trees, and is remarkable for the high development of the sacs or asci, in which the sporidia (which see) are contained. The species grow on trees, rocks, and the bare ground, and, if *Lichina* be included, in situations exposed to frequent immersion in the sea.

Collenchyma.—The cellular matter in which the pollen is generated. It is usually absorbed, but remains and assumes a definite form in some plants, as in Orchids, or delicate threads, as in *Œnothera.*

Collinus.—Growing on low hills.

Collum.—The point of junction between the radicle and plumule, or the root and stem; the point of departure of the ascending and the descending axes, (which see,) or the stem and root, which is commonly called the collar. Also, the lengthened orifice of the ostiolum (which see) of a Lichen; *colliform* is sometimes applied to an ostiolum whose orifice is lengthened into a neck.

Color, (adj. *Colored*, *Coloratus.*)—Botanically,

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this term is used to denote any color except green. In technical botany white is regarded as a color, but green is not.

Colorans.—Changeable, colored.

Colorate.—Colored, painted.

Colpenchyma.—Sinuous cellular tissue.

Colum.—An obsolete term for the placenta.

Columbinus.—Resembling a dove in shape or color.

Columella.—A little column; the firm center of the spore-cases of an Urn Moss, from which the spores separate; the axis or stem of the fruit of Mosses. The long axis around which the parts of a fruit are united; in reality, the ripened growing point. A slender axis over which the spore-cases of such Ferns as *Trichomanes* are arranged. Also, an axis to which a carpel of a compound pistil may be attached, as in the *Geranium.*

Column, Columna.—The combined stamens and styles forming a solid central body, as in Orchids, etc.

Columnaris.—Having the form of a column, as the stamens of a Mallow.

Coma.—The hairs at the ends of some seeds; the empty leaves or bracts at the end of the spike of such flowers as those of the Pineapple.

Comatus.—Tufted.

Comose.—Furnished with hairs at the end. See *Coma.*

Combinate-venose.—When the lateral veins of a leaf unite before they reach the margin.

Combretaceæ, (*Myrobalans.*)—A natural order of polypetalous Calycifloral Dicotyledons belonging to Lindley's Myrtal Alliance. They are trees or shrubs, with alternate or opposite entire leaves without stipules. The flowers are sometimes imperfect, some having stamens only, and others pistils only, and occa-

sionally the petals are wanting. The fruit is succulent or dry, one-celled and one-seeded. The seeds are without albumen; the cotyledons of the embryo are rolled up. They are natives of the tropical parts of Asia, Africa, and America. Some of the plants are cultivated for ornament, and others furnish timber. They have astringent qualities, *Terminalia Bellerica* and *T. Chebula* yielding the astringent fruit called Myrobalan. The bark of *Bucida Buceras* is used for tanning. There are twenty-three known genera and upward of two hundred species. *Combretum*, *Terminalia*, and *Gyrocarpus* illustrate the order.

Comb-shaped.—The same as pectinate, which see.

Commelynaceæ, (*Spiderworts.*)—A natural order of hypogynous Monocotyledons belonging to Lindley's Xyridal Alliance. They are herbs with flat leaves, usually sheathing at the base. The outer perianth (calyx) consists of three parts, herbaceous; the inner (corolla) also consists of three, colored; the stamens are six or three, the anthers opening on the side next the pistil. The ovary is three-celled with a central placenta; there is one style. The fruit is a two to three-celled capsule, opening by two or three valves, which bear the partitions on the middle; the seeds have a linear hilum, (which see;) the embryo is pulley-shaped. They are natives of New Holland, the East and West Indies, and a few are found in North America, but none in Northern Asia or Europe. The underground stems of many yield starch and are used for food. The filaments of the *Tradescantias* have jointed hairs, in which a granular movement is seen under the microscope. There are sixteen known

genera, and two hundred and sixty species. *Commelyna*, *Tradescantia*, and *Cyanotis* are examples of the order.

Commissure.—The face by which the carpels come together or cohere, as in *Umbelliferæ*.

Common Petiole.—The first and principal leaf-stalk in compound leaves; the secondary petioles are called partial.

Compact.—Close, hard.

Complexus.—The name for tissue of various kinds; as, *Complexus cellulosus*, cellular tissue; *C. membranaceus*, the thin membrane which is the foundation of all tissue, elementary membrane; *C. tubularis*, tubular tissue or woody fiber; *C. utricularis*, angular cellular tissue; *C. vascularis*, spiral vessels, properly so called, but often extended to all sorts of tubes with markings on the side, thus losing precision, and with it its value as a scientific term.

Complicate.—Folded up upon itself.

Complicato-carinate.—Folded together so as to form a sort of keel.

Compositæ, (*Composites.*)—The more familiar name of *Asteraceæ*, a large natural order of gamopetalous Calycifloral Dicotyledons belonging to Lindley's Campanal Alliance. The order consists of shrubs and herbs with alternate or opposite leaves having no stipules; the stamens and pistils are either in the same or in separate flowers, which are collected into a head on a common receptacle, (hence the name Composite or compound flowers,) and surrounded by a set of floral leaves or bracts called the involucre. The fruit is single seeded, crowned with the limb of the calyx. The plants were included by Linnæus in his class *Syngenesia*. They are natives of all parts of the world, and sometimes assume an arborescent form

in warm countries. They possess various properties, but bitterness seems to predominate, accompanied with tonic, stimulant, aromatic, and sometimes narcotic qualities. See *Asteraceæ*.

Composites.—The English term for *Compositæ*.

Composition.—The arrangement of organs, or their order of development, or their manner of branching, etc.

Compound, Composite.—Formed of several parts united in one common whole; as pinnated leaves, and all kinds of inflorescence beyond that of the solitary flower. A compound umbel is formed of several simple umbels, etc.

Compressed.—Flattened lengthwise; as the pod of a pea.

Concave.—Hollow.

Conceptacle.—A term sometimes applied to the capsular fruit of red-spored *Algæ*.

Concentric.—Points or lines at equal distances from a common center.

Conchiform.—Shaped like one valve of a common bivalve shell.

Concolor.—Of the same color as some other thing compared with it.

Concrete.—Formed into one mass; joined together.

Condensate.—Bundled, growing close.

Conduplicant.—Doubling up; as when the leaflets of a compound leaf rise up and apply themselves to each other's faces.

Conduplicate, Conduplication.—A term of æstivation, (which see,) when the sides of an organ are applied to each other by their faces.

Condylium.—The antherid of a *Chara*.

Cone.—A dense aggregation of scale-like carpels, arranged symmetrically round an axis, as in the Pine tribe.

Conenchyma.—The conical cells which constitute hairs.

Conferruminate.—Glued together.

Confertus.—When parts are pressed closely round about each other; packed close.

Confervaceæ.—A division of the green-spored *Algæ*, characterized by their simple or branched articulated threads, diffused endochrome, (which see,) and small zoospores. They are found in all parts of the world, but are most numerous in temperate regions. They are sometimes so abundant that, after floods, they form a thick coat like paper on the ground, to which the name meteoric paper has been given. See *Algæ*.

Confluent.—The fastening together of homogeneous parts; gradually uniting organically.

Conformis, Conform.—Of the same form as some other thing; where one part closely resembles another with which it is associated or compared.

Congested.—Crowded very closely.

Conglobate, Conglobated.—Collected into a ball, as the florets of *Echinops*.

Conglomerate.—The same as clustered.

Conglutinate.—Glued together; not organically united.

Conically-subulate.—Between cone and awl-shaped, thickest at the base.

Conico-cylindrical.—Of the form of a cylinder, but tapering to a point.

Conico-hemispherical.—Between conical and round.

Conico-ovate.—Between conical and ovate.

Conico-subulate.—Awl-shaped and conical; tapering to a point.

Conidium.—The gonidium of a Lichen. See *Gonidium*.

Coniferæ, (*Conaceæ, Pinaceæ, Conifers,* the *Pine* family.)—A large and important family, constituting, with the smaller groups of *Cycadeæ* and *Gnetaceæ,* the subclass gymnosperms (which see) of Dicotyl-

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edons. It consists of trees or shrubs, mostly with resinous secretions. The leaves are stiff, sometimes linear or needle-shaped, sometimes short and scale-like, or more rarely broad, lobed, or divided. The flowers are unisexual, either in cylindrical or short catkins with closely packed scales, or the females are solitary. There is no perianth. The male flowers have the stamens either inserted on the axis of the catkin under the scales, or the anther cells are sessile on the inside of the scales themselves, which then form part of the stamens. The ovules and seeds are naked, that is, without ovary, style, or pericarp, although sometimes more or less inclosed in two bracts, or in a fleshy or hardened disk. The seeds are albuminous, with one or sometimes several embryos in the center, each embryo having sometimes more than two cotyledons. There are nearly two hundred known species, distributed over a great part of the globe, several of them forming large forests in temperate climates, or, more rarely, within the tropics; while some of them extend almost to the limits of woody vegetation in high latitudes, or at great elevations. They are distributed into about twenty-five genera, forming three tribes or sub-orders, viz.: *Abietinæ*, with the fruits collected in cones and inverted ovules; of this the principal genera are *Pinus*, (including *Abies*,) *Araucaria*, *Cunninghamia*, *Sequoia*, etc. 2. *Cupressineæ*, with the fruits collected in cones and erect ovules, including *Juniperus*, *Callitris*, *Thuja*, *Cupressus*, *Taxodium*, *Cryptomeria*, etc. 3. *Taxineæ*, sometimes considered as a distinct family, with the fruits solitary or loosely spiked, including *Podocarpus*, *Dacrydium*, *Phyllocladus*, *Salisburia*, *Taxus*, etc.

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The Coniferæ are very useful and important, yielding valuable timber and resin, oil, pitch, and turpentine. Some attain a vast height, as *Sequoia gigantea* in California, specimens having been measured more than 450 feet high and 116 feet in circumference at the base. *Taxodium sempervirens* also attains a very great size. The Pines have their leaves in clusters of two, three, four, five, or six, surrounded by a membraneous sheath at the base. *Pinus sylvestris*, the common Scotch Fir, abounds in cold climates, and supplies timber, turpentine, and pitch, as well as a hemp-like fiber from its leaves, which is used for stuffing pillows and cushions under the name of pine wool. *Pinus pinaster*, or the Bordeaux Pine, thrives well on the seashore. *Abies* includes different species of Fir and Spruce, in all of which the leaves come off from the stem and branches singly. *Abies excelsa* is the Norway Spruce; *A. balsamea* is the Balm of Gilead Fir; *A. Canadensis* is the Hemlock Spruce; and *A. pectinata* is the Silver Fir. *Cedrus* comprises those Cedars which have clustered persistent leaves. *Cedrus Libani* is the Cedar of Lebanon, the Eres of the Bible; *Cedrus Deodara* is the sacred Cedar of India. *Larix* includes the species of Larch, which have clustered deciduous leaves. *Larix Europea* is the European Larch; *L. Americana* is the American Larch, commonly called Hackmatack; *L. Griffithii* is the Himalayan Larch. The *Araucarias* have single-seeded scales, with adherent seeds and many-celled anthers. *Araucaria imbricata* is a Chilian species; *A. Bidwillii* is from Moreton Bay: both have edible seeds. *Eutassa excelsa* is the Norfolk Island Pine, which yields valuable wood. *Cryptomeria Japonica* is the Japan Cedar,

of which there are several beautiful forms. *Cupressus sempervirens* is the common Cypress. The Junipers have a peculiar succulent fruit. *Juniperus Bermudiana* and *J. Virginiana* furnish the Cedar for lead pencils. The species of *Thuja* are known by the name of Arbor Vitæ.

Conifers.—The English name for the order *Coniferæ.*

Coniocysts.—Closed spore-cases resembling tubercles, and containing a mass of spores.

Coniothecæ.—The cells of an anther.

Conjugatæ.—A tribe of green-spored *Algæ.* See *Algæ.*

Conjugate.—Paired; joined in pairs, as when the petiole of a leaf bears one pair only of leaflets; a term chiefly applied to leaves.

Conjugato-palmate.—When a leaf divides into two arms, each of which is palmate.

Conjugato-pinnate.—When a leaf divides into two arms, each of which is pinnate.

Conjunctorium.—The operculum (which see) of the spore-case of an Urn Moss.

Connaraceæ, (*Connarads.*)—A family of Calycifloral Dicotyledons, belonging to Lindley's Rutal Alliance. They are closely allied, on the one hand, to *Xanthoxylecæ,* and on the other to *Leguminosæ,* differing from the former chiefly in the more completely apocarpous ovary, and from the latter in the perfectly regular flowers, and in the seed, in which the radicle is always at a distance from the hilum. They are trees or shrubs, sometimes climbing, with alternate, usually pinnate leaves; the stipules are either small and deciduous, or wanting; the flowers are small, in terminal or axillary racemes or panicles. There are five sepals and petals, ten stamens, and one to five carpels, with two ovules in each, and

distinct terminal styles. They are natives of the tropics of both hemispheres. Zebra-wood is obtained from *Omphalobium Lamberti.* There are about forty species and six or seven genera. *Connarus, Rourea,* and *Cnestis* are representative genera.

Connate, Connatus.—When the bases of two opposite leaves are united together. Also, when any parts, originally distinct, become united in after-growth.

Connectival.—Of or belonging to the connective, which see.

Connective.—The part which intervenes between the two lobes of an anther, and holds them together; it is subject to a great diversity of form. It seems to be analogous to the midrib of a leaf, and is only absent when an anther is strictly one-celled; that is, when the whole of the interior of the end of the stamen is converted into pollen.

Connivent.—Convergent; having a gradually inward direction, as many petals.

Conniving.—Converging. See *Connivent.*

Conocarp.—A fruit consisting of a collection of carpels, arranged upon a conical center, as the Strawberry.

Conoidal.—Resembling a conical figure, but not truly one, as the calyx of *Silene conoidea.*

Conservative organs.—The parts or organs of a plant employed in carrying on the function of nutrition; as the root, stem, and leaves.

Conservatory.—The term usually applied to a green-house structure when attached to the dwelling-house, or when it is used as a house wherein specimen plants are grown or displayed; it is usually of an ornamental character and of various sizes. When detached, a convenient size is twenty feet wide by fifty feet in length,

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with side sashes and curvilinear roofs sloping equally to east and west at an angle of about 35 degrees. The height from the floor to the ridge may be from twelve to fifteen feet, according to circumstances. The height of the front, including three feet of glass, from five to six feet.

Conspersus.—Scattered or sprinkled.

Constricted.—Tightened or contracted in some particular place.

Contiguous.—Where two neighboring parts are in contact through the whole length of their edges or surfaces; as the sepals of *Raphanus* and the cotyledons of many species of plants.

Continuous.—The reverse of articulated. A stem is said to be continuous which has no joints.

Contorted.—Twisted back upon itself; arranged so as to overlap other parts; an arrangement of petals or corolline lobes, when each piece, being oblique in form and overlapping its neighbor by one margin, has its other margin, in like manner, overlapped by that which stands next to it, as in the flower of the Oleander, etc. A flower is contorted when one edge of a petal is exposed, and the other edge is covered by the adjoining petal.

Contortuplicatus, Contortuplicate.—Twisted back upon itself.

Convergenti-nervose.—When simple veins diverge from the midrib of a leaf and converge towards the margin.

Convergi-nerved.—When the ribs of a leaf describe a curve and meet at the point, as in *Plantago lanceolata.*

Convex.—Rising in a circular form.

Convolute, Convolutive.—When one part is wholly rolled up in another, as in the petals of the Wallflower, or the spathe of an *Arum.*

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Convolvulaceæ, (*Bindweeds.*)—A natural order of corollifloral Dicotyledons, included in Lindley's Solanal Alliance. Herbs or shrubs, usually twining, and with a milky juice, having alternate leaves, without stipules, and regular flowers, the flower stalks (peduncles) bearing one or many flowers. They are abundant in tropical countries and rare in cold climates. They twine around other plants, and creep among weeds, etc., along the seashore. The plants are characterized chiefly by their purgative qualities, and many of them are used medicinally. Jalap is produced from the root or underground stem of *Exogonium* (*Ipomœa*) *purga*, while the gum resin called Scammony is produced by *Convolvulus scammonia. Ipomœa Bona-nox*, which produces its pure white flowers at night, is the Moon-flower of Ceylon and other warm countries. *Batatas edulis;* the Sweet Potato, or Batatas, is cultivated in the United States, Japan, and China, and also in Spain and Portugal. In the Philippine Islands the Batatas or Camotes are used for making soup, as well as roasted. This order comprises forty-six known genera, and nearly seven hundred species. *Convolvulus, Ipomœa, Calystegia, Exogonium, Batatas,* and *Pharbitis* are illustrative genera.

Coracinus.—Deep shining black.

Coralliform, Coralloid.—Resembling coral in general appearance.

Corculum.—The embryo; and also the small axis of growth in such dicotyledonous embryos as the Walnut.

Cordate.—Heart-shaped in outline; applied to a plane or flat body having two round lobes at the base.

Cordato-hastate.—Between cordate and hastate.

Cordato-ovate.—Between cordate and ovate.

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Cordato-sagittate.—Between cordate and sagittate.

Cordiform.—When a solid has the form of cordate.

Cordleafs.—A name given by Lindley to the group *Restiaceæ.*

Coreses.—Dark red, broad, discoid bodies, found beneath the epicarp or external membrane of grapes.

Coriaceous.—Having the consistence of leather.

Corky.—Resembling cork in texture.

Corm.—A fleshy, solid underground stem, having the appearance of a bulb, and often called a bulb, from which it is distinguished by not being scaly. See *Bulb.* The Gladiolus, Crocus, Babiana, and most of the Iridaceæ are Corms. A Corm is only a solid mass of feculent matter, which modern botanists do not allow to be a bulb, but call it an underground *stem.* Corms do not require taking up so often as bulbs; and when they are intended to remain for several years in the ground they should be planted from four to six inches deep at first, as every year a new Corm will form above the old one; and thus, if planted too near the surface, the Corm, in a few years, will be pushed out of the ground.

Cornaceæ, (*Dogwood.*)—A small natural order of polypetalous Calycifloral Dicotyledons, belonging to Lindley's Umbellal Alliance. They are trees or shrubs, usually with opposite leaves having no stipules. The flowers are produced in cymose clusters, or in heads, surrounded by an involucre. The fruit is a two-celled drupe, (like a cherry.) They are natives of the temperate parts of Europe, Asia, and America. The plants are used as tonics and in agues. *Cornus mascula* is the Akenia of the Greeks, and the Kizzil-

COR

jiek of the Turks. From the wood of this plant the Turks obtain the dye for their red fez. Some species are grown as ornamental plants, and the common Dogwood, which is very heavy and solid, is much too commonly used in the United States for baling hay, those who buy the hay very properly esteeming it a fraudulent practice. There are nine known genera and forty species. *Cornus, Aucuba,* and *Benthamia* are illustrative genera.

Corneous.—Horny; hard and very close in texture, but capable of being cut without difficulty, the parts cut off not being brittle; as the albumen of the Date, and most other Palm seeds.

Corniculate.—Terminating in a process resembling a horn, as the fruit of *Trapa bicornis.* If there are two horns the word *bicornis* is used; if three horns, *tricornis,* and so on.

Cornu, (adj. *Cornutus.*)—A horn-like process, commonly solid, and usually a metamorphosed state of some organ. Also employed in the sense of Calcar, which see.

Corolla, (adj. *Corollaris, Corolline.*)—That part of a flower which intervenes between the calyx and the stamens. Its parts are called petals, which are almost always colored.

Corolliflorœ.—A sub-class of Dicotyledons or Exogens, characterized by the petals being united, so as to form a monopetalous corolla, inserted below the ovary, and by the stamens being usually attached to the corolla, but sometimes inserted separately below the ovary. Such orders as the Heath family, the Gentians, and the Labiates, may serve as illustrations.

Corona —A coronet; literally a crown. Any appendage that intervenes between the corolla and stamens, as the cup of a Daf-

fodil or the rays of a Passion Flower, or the crown-like cup which is found at the orifice of the tube of the corolla of the Narcissus, etc. *Corona staminea*, a coronet formed from transformed stamens.

Coronans.—Situated on the top or crown of anything. Thus, the limb of the calyx may crown an ovary; a gland at the apex of the filament may crown a stamen.

Coronate.—Furnished with a coronet or crown. Also used in the sense of Coronans, which see.

Coronule.—The small calyx-like body which crowns the nucule (which see) of *Chara*, etc.

Corpus.—The mass of anything; thus *corpus ligneum* or *lignosum* signifies the mass of the woody tissue of a plant, and *corpus medullare* the mass of its cellular tissue in the pith.

Corpuscle.—A small body; a particle of anything.

Corpuscules.—The spore cases of certain *Fungi*. *Vermiform corpuscules* are the spiral vessels in a contracted, strangled, or distorted condition.

Corrugated, Corrugative.—When the parts are crumpled up irregularly, as the petals of the Poppy or the skin of some seeds.

Cor Seminis.—An old name for the embryo.

Cortex.—The bark. Also the peridium (which see) of certain *Fungi*.

Cortical.—Of or belonging to the bark.

Cortical Integument.—The bark or false bark of Endogens.

Cortical Stratum.—The superficial layer of tissue in the thallus (which see) of a Lichen.

Corticate.—Like bark; harder externally than internally; having a rind, as the Orange.

Cortina.—The filamentous ring of certain Agarics or Mushrooms.

Cortinate, Cortinarious.—Having a cobweb-like texture.

Corymb, (adj. *Corymbose.*)—A raceme whose pedicels grow gradually shorter as they approach the summit, so that the result is a flat-headed inflorescence or flower head, as in Candytuft, etc. A *compound corymb* is a branched corymb, each of whose divisions is corymbose.

Corymbiferæ.—Corymb-bearing Composite plants, a sub-order of the natural order *Compositæ* or *Asteraceæ*, containing plants with numerous flowers on a common receptacle, forming a head surrounded by a set of floral leaves or bracts called an involucre. Such plants as Chamomile, the Ox-eye Daisy, the Dahlia, Sunflower, Cineraria, Ragwort, Groundsel, etc., belong to this sub-order. See *Asteraceæ*.

Corymbose.—Formed or arranged after the manner of a corymb, as in *Lopezia coronata*.

Corymbosely-cymose.—Between a corymb and a cyme.

Corymbulose.—Formed or arranged in many small corymbs, as in *Crassula corymbulosa*.

Corynidia.—Processes sunk into the margin of the germinating leaf of Ferns, and containing spiral threads.

Costa.—The midrib of a leaf; that part which is a direct extension of the petiole, and whence the veins arise; a leaf may have several *costæ*.

Costate.—When there is only one rib, as in most leaves. The term is also the adjective of costa, and then means *ribbed*.

Costato-venose.—When the parallel side veins of a feather-veined leaf are much stouter than those which intervene.

Cottony.—When the pubescence is composed of long, soft hairs, which are entangled or interlaced, resembling raw cotton in appearance.

Cotyledons.—The seed lobes; the primordial leaves in the rudimentary plant or embryo; the fleshy leaves that appear above ground when a seedling plant begins to grow, commonly called seed leaves. Monocotyledons have only one such leaf, as Grasses, Lilies, Palms, etc.; Dicotyledons have two, as the Maple, Elm, Pea, Bean, etc.

Cotyliform.—Dished; resembling rotate, but with an erect limb.

Cowled.—See *Cucullate.*

Crass, Crassus.—Something thicker than usual. Leaves are generally papery in texture; the leaves of cotyledons, which are much more fleshy, have been called crass.

Crassulaceæ, (*Sempervivæ, Succulentæ, Houseleeks, Stonecrop* family.)—A natural order of polypetalous Calycifloral Dicotyledons, included in Lindley's Violal Alliance. The order consists of succulent herbs or shrubs with exstipulate (no stipules) leaves and clustered flowers, which are often turned toward one side; sepals three to twenty, more or less combined; petals three to twenty, separate or united; stamens equal in number to petals, or twice as many; ovary composed of numerous one-celled carpels, having scales at their base; fruit consisting of follicles, (which see.) They are natives of dry places in all parts of the world. They are found on rocks, old walls, or hot, sandy plains, exposed to the heaviest dews at night, and the scorching rays of the midday sun. Some species are astringent. *Sedum acre* is very acrid, and is hence called Wall Pepper. *Sempervivum tectorum,* the Houseleek, is so called from being grown in some places on the tops of houses. *Bryophyllum calycinum* possesses the property of producing leaf-buds or young plants along the margins of its leaves. There are twenty-four known genera and about 470 species. *Crassula, Sedum, Sempervivum, Bryophyllum,* and *Penthorum* are examples of this order.

Cratera.—The cup-shaped receptacle of certain *Fungi.*

Crateriform.—Concave, hemispherical, a little contracted at the base.

Cream color.—White, verging to yellow, with little luster.

Creeper.—Properly, a plant that trails on the ground.

Creeping stem.—In common usage, applied to stems growing horizontally, both above and under ground. An underground stem. See *Stem* and *Rhizome.*

Cremocarp.—Fruit consisting of two or more indehiscent, (which see,) inferior, one-seeded carpels, adhering round a distinct and separable axis, like the fruit of Umbelliferæ.

Crena, Crenature, Crenel.—A round or convex flat tooth.

Crenate, Creneled.—Having convex flat teeth, or rounded or scolloped notches; applied especially to the indentations on the edges of leaves. When these teeth are themselves crenated, bicrenate is the word used. Compare *Serrate.*

Crenato-dentate.—Divided at the edge into triangular notches.

Crenato-serrate.—When serratures are convex and not straight.

Crenulate.—Having the edge divided into small crenels or round notches.

Crested.—Having an elevated, irregular, or notched ridge resembling the crest of a helmet; a stamen is crested when the filament projects beyond the anther and becomes dilated. This term is chiefly applied to seeds, and to the appendages

of anthers. It also belongs to bracts which form with their edges an appearance like that of a crest. The term is often applied to the Moss Rose.

Cretaceous.—A very dull white, with a little touch of gray; chalky.

Cretaceously-pruinose.—Covered with white glittering spots or pustules.

Cribrose, Cribriform.—Pierced like a sieve with numerous close, small apertures.

Crinite, Crinitus.—Having tufts of long, weak hairs, growing from different parts of the surface.

Crispate, (adj. *Crispus.*)—When the edge is excessively and irregularly divided and puckered; also when the surface is much puckered and crumpled. Well-known examples are afforded by Curled Parsley, Curled Endive, Curled Kale, etc. Crispate is also a diminutive of Bullate, which see.

Cristate.—The same as Crested, which see.

Cristato-rugose.—When the wrinkles of a surface are deep and sharp-edged.

Croceus, Crocatus.—Saffron-colored.

Crops, Rotation of.—See *Rotation.*

Crowded.—When subordinate parts thickly surround a common support or axis.

Cruciate, Cruciform.—Having the form of a cross with equal arms, as the flowers of the Radish or the Wallflower.

Cruciferæ, (*Brassicaceæ, Crucifers,* the *Cruciferous* family.)—A natural order of Thalamifloral Dicotyledons belonging to Lindley's Cistal Alliance. They are herbs with alternate leaves having no stipules, and flowers, usually yellow or white, arranged in racemes or corymbs without bracts; sepals four, falling off; petals four, arranged like a cross; stamens six, of which four are long and two short. Fruit a siliqua or silicula, that is, a long or short pod opening by two valves, with

a partition (septum) in the center; seeds without albumen; embryo with its radicle folded on the cotyledons. The plants of this very natural order were included by Linnæus in his class *Tetradynamia.* They are very generally distributed, but abound most in cold and temperate regions, especially in Europe. This order has been divided into sub-orders and tribes, according to the nature of the fruit or the embryo. Considering the fruit, we have these six divisions: 1. *Siliquosæ,* a siliqua or long pod opening by two valves from below upward. 2. *Siliculosæ latiseptæ,* a silicula or short pod opening with two flat or convex valves, the septum (partition) being in the broadest diameter. 3. *Siliculosæ angustiseptæ,* a silicula with folded or keeled valves, the septum in the narrow diameter. 4. *Nucumentaceæ,* a silicula whose valves do not open, one-celled, having no septum. 5. *Septulatæ,* valves with transverse partitions on their inside. 6. *Lomentaceæ,* a pod dividing transversely into single-seeded portions, the beak sometimes containing one or two seeds, while the true pod is abortive. The nature of the embryo gives rise to five subdivisions, viz.: 1. *Pleurorhizeæ,* the radicle folded on the edge of the cotyledons. 2. *Notorhizeæ,* the radicle folded on the back of the cotyledons. 3. *Orthoploceæ,* the cotyledons folded on the radicle. 4. *Spirolobeæ,* cotyledons twice folded. 5. *Diplecolobeæ,* cotyledons thrice folded. Crucifers are pungent, and occasionally acrid in their properties. Not one of them is poisonous, but many are culinary vegetables. They contain much nitrogen and sulphur, and consequently give out a fetid odor while decaying.

The order contains some well-known

flowering plants, such as the Stock, Wallflower, Rocket, etc. *Brassica oleracea* is the origin of the Cabbage, Cauliflower, Broccoli, Savoy, and Curled Kale. *Brassica Rapa* is the origin of the Turnip, but the Swedish Turnip is thought by some to be a variety of *Brassica campestris*, while others think it to be a hybrid between *B. Rapa* and *B. Napus*, the wild Naven Rape, or Coleseed. *Crambe maritima* supplies Sea-Kale, which is blanched to fit it for the table. Some plants of the order are pungent, as *Sinapis nigra*, Black Mustard, from the seeds of which the best Mustard is made; *S. alba*, White Mustard, is less pungent. Other pungent plants are *Lepidium sativum*, common Cress; *Nasturtium officinale*, Water Cress; *Cochlearia Armoracia*, Horseradish; and *Raphanus sativus*, the Radish. *Isatis tinctoria*, Woad, yields a blue dye; and *I. indigotica* is used as Indigo in China. *Cochlearia officinalis* grows on the seashore, and has been used by ships' crews affected with scurvy, and has hence been called Scurvy Grass. The seeds of many species yield an oil, such as oil of Mustard, Rape oil, and Camelina oil; and the cake left after pressing the oil from Rape seed is used as food for cattle. There are 206 known genera and about 1,730 species. *Brassica*, *Cheiranthus*, *Erysimum*, *Arabis*, *Lunaria*, *Draba*, *Teesdalia*, *Hesperis*, *Isatis*, *Capsella*, etc., are illustrative genera.

Cruciform.—The same as Cruciate, which see.

Cruentus.—Marked with red blotches; also where any part is wholly red.

Crusta.—The upper surface of Lichens.

Crustaceous.—Hard, thin, and brittle, as the seed skin of Asparagus, and the thallus of many Lichens.

Crypta, (a vault.)—The sunken glands or cysts which occur in dotted leaves; receptacles for the oily and other secretions of plants, like those which occur in the leaves of *Myrtaceæ*. The same as *Cyst*, which see.

Cryptogams, (*Cryptogamia.*)—Many names have been applied to the vast class of plants comprehended under this name, such as Asexual or Flowerless Plants, Acrogens, Agamæ, Anandræ, Acotyledons, Cryptogams, Cryptophyta, Cellulares, Exembryonata, etc. Of these, the term *Cryptogam* has been adopted by Berkeley and others, as being the least objectionable in our present state of knowledge. "The distinctive point in Cryptogams does not consist in the absence of decided male and female organs, nor in their minuteness, for in the greater part their presence has been ascertained beyond all doubt, and the analogous organs in Phænogams often require the assistance of the lens to make out even their external form clearly. The main point is, that the reproductive organs are not true seeds containing an embryo, but mere cells containing one or two membranes inclosing granular matter. These bodies, whether called spores or sporidia, produce by germination a thread or mass of threads, a membrane, a cellular body, etc., as the case may be, which either at once gives rise to the fruit, or to a plant producing fruit. Indeed, the differences are so great, that these spores seem rather to be relatives, or what is technically called homologues, of pollen grains, than of true seeds." Cryptogams are divided into two great classes, *Thallogens* and *Acrogens*, the distinctive characters of which will be found under those heads.

Cryptonemata.—Small, cellular threads, produced by cryptostomata, which see.

Cryptonemiaceæ.—One of the largest natural orders among the rose-spored *Algæ*, belonging to the section *Gongylospermeæ*. The genera and species are numerous and occur in all climates. *Chondros crispus*, with several species of *Iridæa* and *Gigartina*, abound in gelatine, and are useful for many domestic purposes. See *Algæ*.

Cryptophytes.—A synonym of Cryptogams.

Cryptos.—In Greek compounds this word means *concealed;* thus, Cryptogams are plants with concealed sexes.

Cryptostomata.—Little circular nuclei on the surface of some *Algæ*.

Crystalline.—Consisting of or resembling crystals, as the prominences on *Mesembryanthemum crystallinum*.

Crystalworts.—A name given by Lindley to the *Ricciaceæ*.

Cuba Bast.—See *Bast*.

Cubicus.—Cubical, die-shaped.

Cucullate.—When the apex or sides of anything are curved inward, so as to resemble the point of a slipper or a hood, as in the lip of *Cypripedium*, the spathe of an *Arum*, etc.

Cucullus.—A hood or terminal hollow.

Cucurbitaceæ, (*Nhandirobeæ*, *Cucurbits*, the *Cucumber* and *Gourd* family.)—A natural order of polypetalous and gamopetalous Calycifloral Dicotyledons, characterizing Lindley's Cucurbital Alliance. They are succulent, climbing plants with tendrils in place of stipules, alternate palmately-veined, rough leaves, and staminate and pistillate flowers. The fruit is succulent, a pepo, (gourd.) They are chiefly natives of hot countries, especially of India and South America; a few are found in the north of Europe and in North America, and some are also met

with at the Cape of Good Hope and in Australia. The plants of this order generally possess a certain amount of acridity. The pulp of the fruit of *Citrullus Colocynthis* is the Colocynth of the shops; this is supposed to be the wild gourd of the Bible. *Ecbalium purgans* or *agreste* (*Momordica elaterium*) is called Squirting Cucumber, on account of the elastic force with which its seeds are scattered. *Cucumis sativus* is the common Cucumber, *C. melo* is the Muskmelon, and *C. Citrullis* is the Watermelon. *Cucurbita Pepo*, the Gourd, is a scrambling plant, to which belong the Vegetable Marrows, which are edible, the Orange Gourds, which are bitter, the Egg Gourds, Giraumons, Crooknecks, Turk's Caps, and Warted Gourds. *C. maxima* is the Pumpkin, and *C. Melopepo* the Bush Squash. The seeds of *Hodgsonia* are eaten in India. *Lagenaria vulgaris* is the Bottle or Dipper Gourd. The fruit of *Luffa Ægyptiaca* is cut up when dry, and used as a flesh brush under the name of Towel Gourd. *Sechium edule* yields an edible fruit called Choco or Chaca. The species of *Bryonia* are purgative. There are three divisions of this order, viz.: 1. *Nhandirobeæ*, anthers not wavy, placentas adhering in the axis of the fruit, seeds numerous. 2. *Cucurbiteæ*, anthers wavy, placentas and seeds as in the first. 3. *Sicyeæ*, seeds solitary from the tops of the cell. There are about seventy known genera and 340 species. *Cucurbita, Cucumis, Citrullus, Momordica, Coccinia, Tricosanthes, Luffa*, and *Bryonia* are examples of the order.

Cucurbits.—The English term for *Cucurbitaceæ*.

Culm.—The straw of Wheat, Rye, etc.; a kind of hollow stem.

Culmiferous.—Producing culms.

Cultivator.—This is the general name applied to implements for stirring the soil, other than hoes, whether used by hand or by horse-power. There are scores of kinds in use known under different names. The one we most prefer for use in garden operations for cultivating between rows is what is known as the Adjustable Triangular Harrow. It is of the same shape as the ordinary shovel-toothed Cultivator, having instead the ordinary harrow teeth, (about eight inches long,) from ten to fourteen in number. This implement can be so adjusted as to work with a horse between rows, either at eighteen or forty inches apart. In ordinary pulverized soil the teeth sink down from three to four inches, so as to stir the soil to that depth. When extra depth is wanted a weight is put on to sink it deeper. The same implement is made light enough to use by hand, having a wheel in front. When soils are allowed to get weedy, the shovel-toothed Cultivators answer the purpose better than the harrow toothed.

Cultrate, Cultriform.—Shaped like a pruning-knife, as in *Crassula cultrata.*

Cumulate.—Heaped, overflowed.

Cuneiform-ovate.—Between wedge-shaped and egg-shaped.

Cuneate, Cuneiform.—Wedge-shaped; inversely triangular, with rounded angles.

Cuniculate.—Traversed by a long passage, open at one end, as the peduncle of *Tropæolum.*

Cunix.—The separable space which intervenes between the wood and bark of Exogens. The word is now obsolete.

Cunoniaceæ, (Ochranthaceæ, Cunoniads.)—A family of Dicotyledons, closely allied to *Saxifragaceæ*, and very generally considered as a tribe only of that family, differing more in their habit than in the structure of their flowers or fruit. They are shrubs or trees with opposite leaves, simple or compound, and have stipules between the leaf stalks. The fruit is capsular or indehiscent. They are mostly natives of tropical regions, or of the southern hemisphere, and especially of Australia. There are about twenty genera and upward of a hundred species. *Cunonia, Belangera, Callicoma, Acrophyllum,* and *Weinmannia* are examples of the order.

Cupreus.—Of a copper color, yellowish-red with a considerable mixture of gray.

Cupulate.—Shaped like a cup.

Cupule, Cupula, Cup.—The cup or husk of the Acorn, Spanish Chestnut, and similar plants; a collection of bracts; a sort of involucre; a cup-like body found in such *Fungi* as *Peziza.*

Curl.—A disease in Potatoes, referrible to Chlorosis. The tubers produce deformed, curled shoots, of a pallid tint, which are never perfectly developed, and give rise to minute tubers. It is a local disease, however, and its cause is not certainly known. It is distinct from the curled foliage produced by the presence of Aphides. This term is also applied to a serious disease affecting the leaves of the Peach tree, in which they are curled and blistered. Some attribute the disease to Aphides, and others to Fungi. There is no known remedy but the destruction of the tree.

Curta.—Broken off, curtailed.

Curvative.—When the margins are slightly turned up or down without any sensible bending inwards.

Curve-ribbed.—When the ribs of a leaf describe curves, and meet at a point, as in *Plantago lanceolata.*

CUR

Curvi-nerved, Curve-veined.—The same as Convergenti-nervose, which see.

Cuscutaceæ, (*Dodders.*)—A natural order of corollifloral Dicotyledons, belonging to Lindley's Solanal Alliance. The plants are included by some in a sub-order of *Convolvulaceæ.* They are leafless, parasitic, twining herbs, with flowers in dense clusters. The fruit is two-celled, either capsular or succulent; seeds with fleshy albumen; embryo spiral, filiform, having no cotyledons. The seeds germinate in the soil in the usual way, and afterward become true parasites by attaching themselves to plants in their vicinity, and growing at their expense. They are very destructive to some kinds of plants. They are found in the temperate regions of both hemispheres. There are four known genera and upward of fifty species. *Cuscuta, Lepidanche,* and *Epilinella* are examples of the order.

Cuspidate.—Tapering gradually into a rigid point; also, abruptly acuminate, as the leaflet of many *Rubi.* A leaf is cuspidate when it suddenly tapers to a point, as *Tritonia rosea.*

Cut.—Where the incisions are rather deep and regular, as those in the margins of leaves, which extend to a greater depth than where they are said to be "toothed," but not so deep as "laciniate."

Cuticle.—The external homogeneous skin of a plant, consisting of a tough membrane overlying the epidermis. The word is also used for the skin of anything, including the epidermis.

Cutis.—The peridium of certain *Fungi.*

Cutting.—A portion of a young branch which, when inserted into the earth under suitable conditions, emits roots, and is developed as a distinct individual. See *Propagation by Cuttings.*

CYC

Cut-toothed.—Cut and toothed at the same time.

Cyamium.—A kind of follicle resembling a legume.

Cyaneous, Cyanæus, Cyalinus.—In composition *Cyano.* A clear bright blue.

Cyanochrous.—Having a blue skin.

Cyathiform.—Cup-shaped, concave.

Cyatheineæ, Cyatheæ.—The former is a principal sub-division or tribe of polypodiaceous Ferns. The latter is a section of this group.

Cyathus.—The cup-like body which contains propagula, (which see,) or the reproductive bodies of *Marchantia.*

Cycadaceæ, (*Cycads.*)—A natural order of achlamydeous Dicotyledons, belonging to the Gymnospermous (naked-seeded) Alliance. They are small, palm-like trees or shrubs with unbranched stems, occasionally dividing into two, marked with leaf-scars, and having large rays in the wood along with punctated ligneous tubes. The leaves are pinnate, and usually rolled up like a crozier while in bud. The flowers are staminate or pistillate, and without any envelope, (achlamydeous;) the staminate flowers in cones, the scales bearing one-celled anthers on their lower surface, the pistillate flowers consisting only of ovules on the edge of altered leaves, or placed below or at the base of scales. The seeds are either hard, or with a soft, spongy covering; the embryo hanging by a long cord in the cavity of the albumen; the cotyledons are unequal. The plants are chiefly natives of the tropical and temperate regions of America and Asia, but are also found in southern Africa and in Australia. The plants are mucilaginous and starchy. *Cycas revoluta,* one of the best known, is a native of Japan, and supplies a kind of starch which is

used as Sago; and a similar kind of false Sago is supplied by *C. circinalis* in the Moluccas. Caffre bread is made from the starch of a Cape species of *Encephalartos*. In the West Indies a kind of Arrow-root is obtained from some species of *Zamia*. There are seven known genera and about fifty species. *Cycas*, *Zamia*, *Encephalartos*, and *Dion* are examples of the order.

Cycads.—The English term for *Cycadaceæ*.

Cyclanthaceæ.—A name sometimes given to the family of *Pandanaceæ*, of which the Cyclantheæ are a tribe.

Cycle.—A term employed in the theory of spiral leaf arrangement to express a complete turn of the spire, which is assumed to exist.

Cyclical.—Rolled up circularly, as many embryos.

Cylindraceous.—Having the form of a cylinder.

Cylindrenchyma.—Cylindrical cellular tissue, such as that of *Coniferæ*, of many hairs, etc.

Cylindrical.—Cylinder-shaped; approaching closely to the form of a cylinder, as the stems of grasses, etc., which, however, all taper more or less, although by insensible degrees.

Cylindrically-globose.—A form between a cylinder and a sphere.

Cylindrico-campanulate.—Cylindrically bell-shaped.

Cymbellæ.—Reproductive locomotive bodies, of an elliptical form, found in some *Algæ*.

Cymbiform.—Having the figure of a boat in miniature; that is to say, concave, tapering to each end, with a keel externally, as the glumes of *Phalaris Canariensis*.

Cyme.—A kind of inflorescence, produced by the rays of an umbel forming one

terminal flower, and then producing secondary pedicels from below it, in the centrifugal manner, as in the *Laurustinus* and the Elder (*Sambucus*.)

Cymose.—Flowering in cymes.

Cyperaceæ, (*Cyperoideæ*, *Sedges*.)—A natural order of glume-bearing Monocotyledons belonging to Lindley's Glumal Alliance. They are grass-like, tufted plants, having solid, usually jointed, and frequently angular stems; leaves with their sheaths entire, (not split, as in Grasses;) and flowers either perfect or incomplete, (staminate and pistillate,) each borne on a solitary bract or scale, and all united in an imbricated manner, so as to form a spike. Stamens hypogynous, varying from one to twelve, usually three; anthers attached at their base to the filament. Ovary superior; ovule one, style two to three cleft. Fruit a crustaceous or bony achene; embryo lens-shaped, and lying at the base of fleshy or mealy albumen. The plants are very generally distributed over the world, and abound in moist places. Some of the Sedges are demulcent, others are bitter and astringent. Some, by means of their creeping underground stems, bind together the loose sands of the seashore. Their cellular tissue is sometimes used for paper, and the underground stems of several species of Cyperus are used for food. The underground stems of *Carex arenaria* are used for Sarsaparilla. The species of *Eriophorum*, or Cotton Grass, have long, white, silky hairs surrounding the fruit. *Papyrus antiquorum* (also called *Cyperus*) appears to be one of the plants called Bulrush in the Bible. It formerly grew abundantly at the mouth of the Nile, which was hence called papyriferous by Ovid, but it is now gone. The cellular

tissue of its stems was used in place of paper. *Scirpus lacrustis*, the Bulrush, is used for making mats, baskets, and the bottoms of chairs. In South America it is used for making balsas or boats, and a similar use is referred to in Isaiah, xviii., 1, 2. There are 120 known genera and upward of 2,000 species. *Cyperus*, *Papyrus*, *Carex*, *Scirpus*, *Eriophorum*, and *Cladium* are examples of the order.

Cyphelia.—Collections of gonidia (which see) in the form of cups; a term only used of Lichens.

Cyphellæ.—Pale wart-like spots found on the under surface of the thallus (which see) of some Lichens.

Cypsela.—The dry, one-celled, one-seeded, inferior fruit of Composites.

Cyst.—The spore-case of certain *Fungi;* also the hollow spaces in parenchyma, (which see,) in which the oily matter collects, as in the rind of the Orange.

Cystidia.—Salient cells accompanying the basids or asci (which see) of *Fungi;* by some regarded as antherids, (which see.)

Cystocarpum.—A case including a great many spores. The term is confined to *Algæ.*

Cytoblast.—That elementary sphorule, derived from organic mucus, which produces a cell from its side, according to Schleiden. It is the nucleus of R. Brown and others.

D.

Dædaleus.—When a point has a large circuit, but is truncated and ragged; or wavy and irregularly plaited, as the hymenium (which see) of some Agarics.

Danœaceæ.—The name of a natural order of Ferns, also called *Marattiaceæ*, which see.

Daphnaceæ.—A natural order of monochlamydeous dicotyledonous plants, synonymous with *Thymelœaceæ* or *Thymelaceæ*, which see.

Daphnads.—A name used by Lindley for the *Thymelaceæ.*

Dasycarpos.—Hairy-fruited.

Dasycladeæ.—A small natural order of green-spored *Algæ*, which are either naked or coated with carbonate of lime, and have a one-celled simple or branched axis, which is whorled either throughout its whole length or near the summit with jointed branchlets. The fruit is contained in free or laterally united sporangia. See *Algæ.*

Dealbate.—Covered with a very opaque white powder.

Deca.—In Greek compounds means *ten;* as *Decagynia*, having ten pistils.

Decagynia.—An artificial order in the Linnæan system, consisting of plants which have either ten pistils, or whose pistil has ten free styles.

Decandria.—The tenth artificial class in the Linnæan system, including certain flowers with ten stamens, not belonging to other classes. Decandrous flowers in the classes Monadelphia, Diadelphia, Moncœcia, Dicœcia, form the orders "Decandria," severally subordinate to those classes.

Decandrous.—Having ten stamens.

Decaphyllous.—Having ten leaves.

Deciduous.—Falling off. Leaves which are shed annually are said to be deciduous; as are also trees that annually lose their leaves. So also the calyx and corolla of *Cruciferæ.*

DEC

Declinate.—Bent downwards.

Decompound, Decomposite.—Having various compound divisions or ramifications; a leaf is said to be decompound when it is twice pinnated; a panicle, when its branches are also panicled.

Decumbent.—Reclining upon the earth and rising again from it; applied to stems when they recline upon the surface of the earth, but have a tendency to rise again at the extremities; applied to stamens, it is a synonym of *Declinate*, which see.

Decurrent.—Where the limb of a leaf is prolonged down the stem on each side, below the point of insertion, or where the midrib quits it; as though the leaf were partially united to the stem by its midrib. Common in the Thistles.

Decursively pinnate.—When a petiole is winged by the elongation of the base of the leaflets; hardly different from pinnatifid.

Decussate, Decussated.—Arranged in pairs that alternately cross each other; when two right lines cross each other at right angles they are said to be decussate; leaves are often placed in this position, as in *Ixora parviflora, Phlox decussata*, etc.

Deferent.—Conveying anything downwards.

Deflexed.—Bending gradually downwards through the whole length.

Defoliation.—The casting off of leaves.

Deformation.—An alteration in the usual form of an organ, by accident or otherwise.

Degeneration.—Some peculiarity in the condition of an organ, induced by a modification of the circumstances under which its more usual and healthy development is effected.

Degradation.—A change, consisting of an abstraction, loss, abortion, or non-development of usual organs.

DEP

Dehiscence.—The opening of pods and of the cells of anthers at maturity, so as to emit seeds, pollen, etc.

Dehiscent.—Opening, gaping; an expression applied to the mode in which the anthers or the capsule burst open and discharge their contents.

Deliquescent.—Branched, but so divided that the principal axis is lost trace of in ramifications, as the head of an Oak tree.

Deltoid.—A solid, the transverse section of which has a triangular outline. Also applied to the outline of thin bodies.

Demersed.—Buried beneath water.

Dendroid.—Divided at the top into a number of branches, so as to resemble the head of a tree; only applied to small plants like Mosses.

Dendron.—In Greek compounds *dendron* means a tree.

Dens.—A toothing.

Densum.—Thick, tufted, bundled.

Dentate.—Having sharp teeth with concave edges. When these teeth are themselves toothed, the part is *duplicato-dentate;* not *bidentate*, which means two-toothed.

Dentato-crenate.—The same as crenato-dentate, which see.

Dentato-laciniate.—When toothings are irregularly extended into long points.

Dentato-serrate.—When toothings are taper-pointed and directed forwards, like serratures.

Denticulate, Denticulatus.—Having very fine marginal teeth.

Denudate, Denudatus. — When a surface which has once been hairy, downy, etc., becomes naked.

Deoperculate.—A term used in describing Mosses, when the operculum will not separate spontaneously from the spore-cases.

Depauperate.—When some part is less per-

fectly developed than is usual in plants of the same family; thus, when the lower scales of the head of a cyperaceous plant produce no flowers, such scales are said to be depauperated or starved.

Dependent.—Hanging down.

Depressed.—Pressed downward; having the appearance of being flattened vertically, as the tuber of the Turnip.

Derma.—In Greek compounds *derma* means the bark or rind.

Dermis.—The skin of a plant.

Descending. — Tending gradually downward; as some branches and leaves. Also, penetrating more or less vertically into the earth; as with the root, the descending axis of vegetation.

Desmos.—In Greek compounds *desmos* means anything bound to another, or brought into close contact with it.

Development.—That gradual extension of parts by which any organ or plant proceeds from its nascent state to maturity.

Dewy.—Where a surface appears as if covered with dew, arising from small, irregular, and pellucid expansions of cellular tissue.

Di.—In Greek compounds *di* means two, as *Digynia*, two pistils.

Diachyma.—The green cellular matter of leaves.

Diadelphia.—An artificial class in the Linnæan system, characterized by the stamens being united by their filaments into two distinct bundles.

Diadelphous.—Consisting of two parcels or fraternities of stamens.

Diagnosis.—The short character or description by which one plant is distinguished from another.

Dialypetalæ.—Plants with *distinct* petals, in contra-distinction to *Gamopetalæ*, which have the petals united into a single corolla. The term is a modern one, proposed to be substituted for *Polypetalæ*, which is more generally used in the same sense, although it signifies literally plants with many petals.

Dialypetalous.—The same as polypetalous, which see.

Dialyphyllous.—The same as polysepalous.

Diandria.—An artificial class in the Linnæan system, containing plants whose flowers have only two stamens.

Diapensiaceæ, (*Diapensiads.*)—A small order of corollifloral Dicotyledons, established by Lindley in 1836, and by him referred to his Gentianal Alliance, and recently reconstructed by Dr. Asa Gray. Perennial herbs, sometimes suffruticose, with alternate leaves and pentamerous gamopetalous flowers. The plants inhabit the northern parts of Europe and North America.

Diaphanous.—Transparent, or nearly so.

Diaphysis.—A preternatural extension of the center of the flower, or of an inflorescence.

Diatomaceæ.—A very distinct natural order of green-spored *Algæ*, remarkable for the enormous quantity of silex contained in their frond, and for their yellow-brown color. See *Algæ*.

Dibber.—This is the pointed implement used for setting out vegetable plants that have long roots, such as Cabbage, Celery, etc., and also seedling trees and flowering plants. It is best made in the form of a pistol handle, about ten inches long, one and a half inches in diameter, and shod with three or four inches of iron tapering to a sharp point.

Dichlamydeous.—Having both calyx and corolla.

Dichogamous.—When the florets of an inflorescence are of two separate sexes.

DIC

Dichotomia, Dichotomous.—Having the divisions always in pairs; a term equally applied to branches, or veins, or forks.

Diclesium.—A one-seeded indehiscent fruit inclosed within a hardened perianth, as in the Marvel of Peru.

Diclinous. — Having the stamens in one flower and the pistil in another.

Dicotyledonous.—Having two cotyledons.

Dicotyledons, Dicotyledoneæ.—Plants having two seed leaves, which are called cotyledons. This is one of the primary divisions or classes of the vegetable kingdom, including about 7,000 known genera, and about 70,000 known species of flowering plants. The class also receives the name of *Exogenæ* or *Exogens*, from the structure of the stems. The plants of this great class have spiral vessels; their stems are formed by additions externally in the form of zones or rings; stomata or pores exist in the leaves, which have a reticulated or netted venation. The plants have stamens and pistils, either in the same or in different flowers. The symmetry of the flowers is represented by five or two, or multiples of these numbers. The ovules are contained in an ovary, or more rarely are naked; and the embryo has two, sometimes more, cotyledons.

Dictyogens, (Dictyogenæ.)—A sub-class of Monocotyledons or Endogens, according to Lindley.

Didymous.—Double; growing in pairs, as the fruit of Umbellifers.

Didynamia.—An artificial class in the Linnæan system, characterized by the flowers being irregular, and containing four stamens, of which two are longer than the other two.

Didynamous.—Having two long stamens and two short ones in the same flower.

DIM

Difformis.—Having an unusual shape, or remarkable for some singularity of shape.

Diffuse.—Scattered, widely spread, as in *Veronica saxatilis.*

Digamous.— When two kinds of flowers, some male and others female, are placed on the same receptacle in *Compositæ.*

Digging.—This is now nearly all done by the digging fork in place of the spade, unless in soils that are being broken up from sod. The fork pulverizes the soil much better, (the only object to be attained by digging,) is much lighter to handle, and the wonder is why, for generations, the spade was used, when the manure fork, at the same time in use, had not suggested its value for digging purposes.

Digitaliform.—Like campanulate, but longer and irregular, as the corolla of *Digitalis.*

Digitate.— Where several distinct leaflets radiate from the point of a leaf-stalk; applied to a simple leaf, where the lobes are very narrow, deeply cut, and all extending nearly to the base of the limb, like the extended fingers of the human hand, as in the Horse-Chestnut, Lupins, *Spiræa palmata*, etc.

Digitinerved.—When the ribs of a leaf radiate from the top of the petiole.

Digitus, (adj. *Digitalis.*)—The length of the index finger; about three inches in length.

Digynia.—An order, in some of the classes of the artificial system of Linnæus, characterized by the flowers having two pistils, or at least two different styles.

Digynous.—Having two styles or female organs.

Dimidiate.—When one half of an organ is so much smaller than the other as to seem as if missing; hardly different from oblique, except in degree; also slit half way up.

Dimidiato-cordate.—When the larger half of a dimidiate leaf is cordate.

Dimorphous.—Where similar parts of the same plant assume different shapes or characters.

Diœcia, (adj. *Diœcious*, *Dioicus.*)—When the sexes of a plant are borne in different flowers by distinct individuals; the different sexes on different plants. A separate class, and also an order of another class, in the artificial system of Linnæus, characterized by the unisexual flowers of the same species being produced on distinct individuals, as in Willows.

Dioico-polygamous.—When some of the flowers of a diœcious plant produce hermaphrodite flowers.

Dioscoreaceæ, (*Yams.*)—A natural order of monocotyledonous or endogenous plants, belonging to the sub-class of *Dictyogenæ*. They are twining shrubs or herbs with tubers either above or below ground, usually alternate leaves with reticulated venation, and small staminate and pistillate flowers growing in spikes. Perianth six-cleft, in two rows, herbaceous and adherent; stamens six, inserted into the base of the perianth; ovary inferior, three-celled; ovules, one or two, suspended; style three-cleft. Fruit compressed, three-celled, two cells often abortive; seeds albuminous; embryo in a cavity. They are chiefly natives of tropical countries. *Tamus*, however, is a native of Europe and of the temperate parts of Asia. The plants are mostly acrid, but contain also a large amount of starch. Several species of *Dioscorea* produce edible tubers, which are known as Yams, and are eaten like Potatoes. *Tamus communis*, black Bryony, has an acrid, purgative, and emetic tuber, and a berried fruit of a red color. *Testudinaria elephantopsis* has a remarkably tuberculated stem, and is called Elephant's Foot or the Tortoise Plant of the Cape. The central part is eaten by the Hottentots. There are seven known genera and one hundred and sixty species. *Dioscorea*, *Tamus*, and *Testudinaria* are examples of the order.

Dipetalous.—Consisting of two petals.

Diphyllous.—Two-leaved.

Diploe.—That part of the parenchyma of a leaf which intervenes between the two layers of epiderm.

Diplostemonous.—Having twice as many stamens as petals.

Diplotegia.—An inferior capsule.

Dipsacaceæ, (*Teazleworts.*)—A natural order of gamopetalous Calycifloral Dicotyledons or Exogens, belonging to Lindley's Campanal Alliance. They consist of herbs or undershrubs with opposite or whorled exstipulate leaves, and flowers in heads surrounded with an involucre. Fruit dry, not opening, crowned by the poppus-like calyx; seed albuminous. They are mostly natives of the South of Europe, Barbary, the Levant, and the Cape of Good Hope. Some of the species are astringent. Some are used in dressing cloth. *Dipsacus Fullonum* is the Fuller's Teasel, the dried heads of which, with their hooked, spiny bracts, are used in fulling cloth. The opposite leaves of the wild Teasel, *D. sylvestris*, unite at their bases so as to form a basin, in which water collects; hence the plant was called *Dipsacus*, or thirsty. There are six known genera and about 170 species. *Dipsacus*, *Scabiosa*, *Morina*, and *Cephalaria* are examples of the order.

Dipteraceæ, (*Dipterocarpeæ*, *Dipterads.*)—A natural order of thalamifloral Dicotyledons or Exogens, belonging to Lindley's Guttiferal Alliance. They are large trees

with resinous juice, and alternate involute leaves with convolute stipules. The fruit is leathery, one-celled; seeds single, without albumen. They are tropical Indian trees, found especially in the islands of the Indian Archipelago. They yield a resinous, balsamic juice. *Dryabalanops Camphora* or *aromatica*, a tree from a hundred to a hundred and thirty feet high, supplies the hard Camphor of Sumatra, which exists in a solid state in the interior of the stem, sometimes in pieces weighing from ten to twelve pounds. It also yields by incision a resinous, oily fluid called the Liquid Camphor or Camphor Oil of Borneo. Sometimes five gallons of the fluid are found in a cavity in the trunk. Several others yield valuable resins. There are seven known genera and forty-seven species. *Dipterocarpus*, *Valeria*, *Dryobalanops*, and *Shorea* are examples of the order.

Dipterous.—Having two wing-like processes, as the seeds of *Halesia diptera.*

Dipyrenous.—Containing two stones or pyrenæ, which see.

Disciform.—Flat and circular; the same as orbicular, which see. Also a name given to the chambered nuts of such plants as the Walnut.

Discocarpium.—A collection of fruits placed within a hollowed receptacle, as in many Roseworts.

Discoidal. — Orbicular, with perceptible thickness, slightly convex, and a rounded border.

Discolor.—Parts having one surface of one color, and the other surface of another color. Also, any green color altered by a mixture of purple, as in *Cissus discolor.*

Discopodium.—The foot or stalk on which some kinds of disks are elevated.

Disermis.—Smooth, without thorns.

Disk.—An organ intervening between the stamens and ovary. It assumes many forms, the most common of which is a ring or scales, and it is apparently composed of metamorphosed stamens. Also, the receptacle of certain *Fungi*, or the hymenium (which see) of others.

Disomorphous.—Two-shaped.

Dispermus.—Two-seeded.

Dissected.—Cut into many deep lobes.

Dissectus.—Where the segments, as in some leaves, are very numerous and deeply cut.

Dissemination.—The manner in which ripe seeds of plants are naturally dispersed.

Dissepiments.—The partitions in a fruit caused by the adhesion of the sides of carpellary leaves. Spurious dissepiments are any partitions in fruit which have not the origin just explained.

Dissimilar.—When similar organs assume different forms in the same individual; as some of the anthers in the genus *Cassia.*

Distachyon.—Two-spiked.

Distichous.—When parts are arranged in two rows, the one opposite the other, as the florets of many grasses.

Distinct.—When any part or organ is wholly unconnected with those near it.

Distractile.—Divided into two parts as if torn asunder, like the connective of some anthers.

Diurnal, Diurnus.—Enduring only a day, as the flowers of *Tigridia* and *Hemerocallis*, (Day Lily.)

Divaricate, Divaricating.—Straggling; spreading abruptly; branching off at an acute angle, and spreading irregularly in various directions, as in *Veronica pinnata.*

Divergent.—Growing far asunder; applied to branches and leaves.

Diversiflorus.—When a plant or inflorescence bears flowers of two or more sorts.

DIV

Divided.—Where incisions or indentations extend nearly to the base.

Dodecagynia.—An order in the artificial system of Linnæus, characterized by flowers which have twelve pistils.

Dodecandria.—The eleventh class in the artificial system of Linnæus, including flowers with twelve stamens, or rather those which have between twelve and twenty, provided they are not attached to the calyx.

Dodecandrous.—Having twelve stamens.

Dolabriform.—Ax-shaped.

Dorsal.—Attached to, or growing on, the back of any organ.

Dorsiferous.—Bearing something on the back.

Dorsum.—The back of anything.

Dotted.—Furnished with transparent receptacles of oil, looking like dots; marked with punctures.

Double.—When applied to the entire flower, it signifies that monstrous condition in which the parts of the inner floral whorls, the stamens or carpels, become converted into petals. Applied to the calyx or corolla separately, it refers to certain examples in which these organs appear to consist of more than the usual normal number of subordinate parts, and thus seem as if they were double. Double flowers are most common in the natural order *Compositæ*.

Double-bearing.—Producing twice in the same season.

Doubly.—Having a form or structure repeated; doubly-toothed means teeth themselves toothed, and so on.

Downy.—Covered with very short, weak, close hairs.

Downy-pubescent.—Having soft, short down, closely pressed to the surface.

Draconis.—Spotted like a serpent.

DRA

Draining.—This is one of the most important operations in horticulture. No matter how fertile the normal condition of the soil; no matter how abundantly it is fertilized; no matter how carefully and thoroughly it is tilled, if water remains in it at the depth at which roots penetrate, all labor will be in vain; for no satisfactory result can ever be attained until the water is drained off. The subject is one of such importance that we cannot give it full attention here, and to such as require to operate on a large scale, works specially devoted to the subject should be consulted, or a draining engineer employed. Soils having a gravelly or sandy sub-soil ten or twenty inches below the top soil do not usually need draining; but in all soils underlaid by clay or hard pan, draining is indispensable, unless in cases where there is a slope of two to three feet in a hundred; and even in such cases draining is beneficial if the sub-soil is clay.

In soils having a clay or hard-pan sub-soil, drains should be made three feet deep and not more than twenty feet apart. If stones are plenty, they may be profitably used to fill up the drains, say to a depth of twelve or fifteen inches, either placed so as to form a "rubble" drain, if the stones are round, or built with an orifice at the bottom, if the stones are flat. In either case, care must be used to cover the stones carefully up with inverted sods, or some material that will prevent the soil being washed through the stones and choking up the drain.

Drain tiles, when they can be obtained at a reasonable price, are the best material for draining. The horseshoe pattern is generally used. If the drain

has a hard bottom they can be placed directly on it when leveled to the proper grade; but if the ground is soft and spongy, a board must be laid in the bottom, on which to place the tiles. It is often a very troublesome matter to get the few drain tiles necessary to drain a small garden, and in such cases an excellent and cheap substitute can be had by using one of boards. Take ordinary rough boards, Pine, Hemlock, or Spruce, and cut them into widths of three or four inches, and nail them together so as to form a triangular pipe, taking care to "break the joints" in putting the lengths together. Care must be taken that the boards are not nailed together too closely, else they might swell so as to prevent the water passing into the drain to be carried off. These drains are usually set with a flat side down, but they will keep clear better if put with a point down, though it is more trouble to lay them. Drains made in this way will last twenty years or more.

Of course, in draining, the greater the fall that can be got the better, though, if the grading is carefully done by a competent engineer, a very slight fall will suffice. Some of the trunk or main sewers in our cities have only a grade of one foot in a thousand.

Drainage in flower pots is essential for most plants whenever the pot is over five inches in diameter. Charcoal broken into pieces from one-half to one inch in diameter we prefer to every other kind of drainage, which should be in depth from one inch to three inches, according to the size of the pot to be drained, an extra quantity being necessary if the plant is being shifted into a pot too large; then ample drainage is indispensable to admit of the quick escape of water. This drainage, so called, is not alone of use as a means for the rapid escape of water, but also for the admission of air to the roots, which brings in another important matter in connection with the drainage in pots, the necessity to stand the pots on some rough material, such as gravel or cinders; for if placed on sand, soil, or anything that will close up the orifice in the bottom of the pot, all the drainage placed in it will avail nothing. It is far better to use no drainage at all, and stand the pots on a rough surface, than to use the drainage and place the plants on some material that will close the outlet.

Droseraceæ, (*Sundews.*)—A natural order of thalamifloral Dicotyledons or Exogens belonging to Lindley's Berberal Alliance. They are herbs, which are often covered with glandular hairs. They have alternate leaves with fringes at their base, and a fern-like growth. The plants inhabit marshes in Europe, India, China, the Cape of Good Hope, Madagascar, North and South America, and New Holland. They have acid and slightly acrid properties. The species of *Drosera* are remarkable for their glandular hairs, which are covered with drops of fluid in sunshine. *Dionæa muscipula* is a still more remarkable plant, commonly called Venus's Fly-trap, which see. Some include *Parnassia* in this order. There are seven known genera and about one hundred species. *Drosera*, *Dionæa*, *Drosophyllum*, and *Aldrovanda* are examples of the order.

Drupaceæ, (*Drupiferæ*, *Amygdaleæ*, *Almondworts.*)—According to Lindley, this is a distinct natural order, while other botanists regard it as a sub-order of *Rosaceæ*.

DRU

The order belongs to the class of Dicotyledons, and the sub-class *Calyciflorœ Polypetalœ*, and to Lindley's Rosal Alliance. They are trees and shrubs with simple alternate stipulate leaves. The flowers are white or pink, in umbels or single. The fruit is a drupe, with a hard endocarp; the seed usually solitary; no albumen. The plants are found in cold and temperate climates of the northern hemisphere. The leaves, flowers, and seeds yield hydrocyanic or prussic acid. The fruit is in many cases edible. *Amygdalus communis*, the Almond Tree, a native of Asia and Barbary, is cultivated in the south of Europe. There are two varieties, the one producing sweet, the other bitter Almonds. From the kernels prussic acid is obtained. *Cerasus communis* yields the common or cultivated Cherry. *C. Lauro-cerasus*, the Cherry Laurel or Bay Laurel, yields a hydrocyanated oil. *Prunus communis* furnishes the common or cultivated Plum, and *P. Armeniaca* the Apricot. *Amygdalus Persica* supplies the Peach, and a variety gives the Nectarine. There are five known genera and a hundred and ten species. *Amygdalus*, *Cerasus*, and *Prunus* are examples of the order.

Drupe, (adj. *Drupaceous.*)—A kind of fruit consisting of a fleshy, succulent rind, and containing a hard stone in the center, like the Olives, Plums, Apricots, etc.

EBE

Drupel, Drupeole.—A very small Drupe. The fruit of the Blackberry is composed of several drupels, seated on a pulpy receptacle.

Ducts.—Tubular vessels marked by transverse lines or dots; apparently, in some cases, modifications of spiral vessels, when they are called *closed*, *annular*, *reticulated*, and *scalariform;* sometimes analogous to pitted tissue, when they are called *dotted*, and form bothrenchyma, which see.

Dulcis.—Sweet, nectariferous.

Dumus, (adj. *Dumose.*)—A low branching shrub.

Duplicate, Duplicato.—Growing in pairs. When compounded with the words Crenate, Dentate, Serrate, it implies that the incisions on the margins of leaves bearing these names are themselves crenated, dentated, and serrated.

Duplo.—Twice as much as, or twice as many as.

Duramen.—The heart-wood, or that part of the timber of a tree which becomes hardened by the matter deposited in it. It is next the center in Exogens and next the circumference in Endogens.

Dusty.—Where an otherwise smooth surface is covered with minute granular incrustations resembling dust.

Dwarf.—Of small size compared with other species of the same genus, or with other varieties of the same species.

E.

E, Ex.—In compound words the meaning is *without;* as ex-albuminous, without albumen.

Eared.—Having ears; the same as auriculate, which see.

Ebenaceœ, (*Ebenads.*)—A natural order of Corollifloral Dicotyledons, belonging to Lindley's Gentianal Alliance. They are trees or shrubs, not milky, with alternate exstipulate, leathery, and entire leaves.

EBR

The flowers are hermaphrodite, (perfect,) or pistillate and staminate. The fruit is a round or oval berry with albuminous seeds. They are chiefly natives of the East Indies, but are also found in tropical Africa, at the Cape of Good Hope, in South America, Brazil, Australia, Northern Asia, and China. The trees yield a hard and durable timber. The heart-wood of different species of *Diospyros* is the Ebony of commerce, of which there are many varieties. The Keg-fig of Japan is the edible fruit of *Diospyros Kaki*, and our common Persimmon is the fruit of *Diospyros Virginiana*. There are five recognized genera and about 250 species. *Diospyros*, *Royena*, *Euclea*, and *Maba* are examples.

Ebracteate.—Having no bracts.

Eburneus.—Of the color of ivory.

Ecalcarate.—Not having a spur.

Ecaudate.—Spikeless; without a stem.

Ecblastesis.—The production of buds within flowers, in consequence of monstrous development; or on inflorescences.

Echinate, Echinated.—Furnished with numerous rigid hairs or straight prickles; as the fruit of *Castanea vesca*, *Amomum subulatum*, etc.

Ecostate.—Not having a central or strongly marked rib or costa.

Eddoes.—The tuberous stems of various araceous plants, as *Colocasia esculenta*, *Caladium bicolor*, etc.

Edentate.—Not having teeth.

Edentulus.—Not toothed.

Edged.—When one color is surrounded by a very narrow rim of another color.

Efflorescent.—The action of beginning to flower.

Effoliation.—The removal of leaves.

Effuse.—Applied to inflorescence, and means a kind of panicle with a very loose arrangement.

ELL

Efulcrate.—Said of buds from below which the customary leaf has fallen.

Egg-shaped.—The same as ovate, which see.

Eglandulose.—Not having glands.

Ehretiaceæ, (*Ehretiads.*)—A natural order of Dicotyledons, belonging to De Candolle's sub-class *Corolliflorœ*, and to Lindley's Echial Alliance. The plants are closely allied to the Borageworts. They are trees, shrubs, or herbs. They are chiefly tropical plants, though some occur in the south of Europe and others in our Southern States. The Heliotrope, a native of Peru, was introduced in 1740, and is universally esteemed for its delightful fragrance. There are fifteen known genera and about 330 species. *Ehretia*, *Heliotropium*, and *Tournefortia* are examples of the order.

Ehretiads.—The English term for *Ehretiaceæ*.

Elæagnaceæ, (*Oleasters.*)—A natural order of monochlamydeous Dicotyledons, belonging to Lindley's Amental Alliance of diclinous Exogens. They are trees or shrubs, chiefly natives of the northern hemisphere. There are four known genera and thirty species. *Shepherdia*, *Elæagnus*, and *Hippophaë* are examples of the order.

Elaio.—In Greek compounds this word means olive color, a mixture of green and brown.

Elaters.—Cells containing a double spiral, which occur in the capsules of *Jungermanniaceæ* and *Marchantiaceæ* in company with the spores.

Elatus.—Tall.

Eleutheros.—In Greek compounds means distinct, separate.

Ellipsoid, Ellipsoidal.—A solid with an elliptical figure; like an ellipsis, as in *Nasturtium amphibium*.

ELL

Elliptic.—A flat body which is oval and acute at each end.

Elliptic-lanceolate.—A form between elliptic and lanceolate, as in *Olea Americana.*

Elongate, Elongated. — Lengthened or stretched out; when any part of an organ is in any way remarkable for its length in comparison with its breadth.

Emarcid.—Flaccid, wilted.

Emarginate.—Having a small notch in the end, as if a piece had been taken out, as in *Canna coccinea.*

Embolus.—A plug; a process which projects downward from the upper part of the cavity of the ovary in *Armeria,* and closes up the foramen of the ovule.

Embossed.—Projecting from the surface, like the boss or umbo of a round shield or target.

Embracing.—Clasping with the base. The same as amplexicaul, which see.

Embryo, (adj. *Embryonal.*)—The rudiment of a plant contained in the seed. It makes its first appearance soon after the pollen has fertilized the ovule. *Fixed embryo,* a leaf bud.

Embryo buds.—Spheroidal solid bodies, resembling woody nodules, formed in the bark of trees, and capable of extending into branches under favorable circumstances.

Embryotegium, Embryotega.—A little papilla, often separating as a lid, which covers over the radicle of some kinds of embryo. It is the hardened apex of the nucleus.

Empetraceæ, (*Crowberries.*)—A natural order of monochlamydeous Dicotyledons belonging to Lindley's Euphorbial Alliance. They are shrubs with heath-like, evergreen leaves without stipules, and small axillary flowers, which are usually imperfect. The fruit is fleshy, with two to nine nucules; seed solitary. They are

END

natives chiefly of the northern parts of Europe and America. There are four known genera and five species. *Empetrum, Ceratiola,* and *Corema* are examples of the order.

Emphysematose.—Bladdery; resembling a bladder.

Endeca. — In Greek compounds means eleven.

Endecagynous.—Possessing eleven pistils.

Endecandrous.—Possessing eleven stamens. No flowers are strictly characterized by possessing either eleven stamens or eleven pistils, but as such conditions occur from accidental abortions or monstrous developments, the terms are in use.

Endocarp.—The lining of a carpel; the inner surface or lining of a fruit, representing at that time the upper surface of a carpellary leaf. The stone of a Cherry is its endocarp.

Endogens.—A large class of plants to which the names of *Monocotyledones* and *Amphibryæ* are also given. "They have a cellular and vascular system, the latter exhibiting spiral vessels. Their stem is endogenous, that is to say, increases in diameter by the addition of woody vessels towards its interior, the outer part being the oldest and densest, and hence the name Endogens, inward growers; bundles of woody, spiral, and pitted vessels are scattered throughout the cellular tissue; there is no pith, no separable bark, no woody rings or zones, and no true medullary rays. The age of woody Endogens cannot be determined by counting concentric rings, as in Exogens. The leaves are usually continuous with the stem, and do not fall off by articulations; and when at length they separate, their bases leave marks or scars at definite intervals on the stem, as may be

seen in Palms. The stems of Endogens are often subterranean, in the form of Corms, Rhizomes, or Bulbs. The leaves have stomates, and their venation is usually parallel, though in a few cases it is slightly reticulated. The flowers have stamens and pistils, and three-membered symmetry. The ovules are contained in an ovary, and the embryo has one cotyledon or seed lobe, whence they are called monocotyledonous.

"The class has been divided into two sub-classes: 1. *Petaloideæ* or *Floridæ*, in which the flowers consist either of a colored perianth or of scales arranged in a whorl. 2. *Glumiferæ*, in which the flowers, in place of sepals and petals, have imbricated bracts or scales called glumes, (which see.) Lindley has added a third sub-class called *Dictyogenæ*, on account of the net-veined leaves. Among the *Petaloideæ* there are three sections: 1. *Epigynæ*, having perfect flowers and a superior perianth, as Orchids, Gingers, Irids, Amaryllids, etc. 2. *Hypogynæ*, having perfect flowers and an inferior perianth, as Lilies, Rushes, and Palms. 3. *Incompletæ*, with imperfect flowers without a proper whorled perianth, as Screw Pines and Arums. Among *Glumiferæ* are included the two orders of Grasses and Sedges."

Endophlœum.—The liber of bark; the inner layer, containing woody tissue, lying next the wood.

Endophyllous. — Formed from within a sheathing leaf; as the young leaves of endogenous plants.

Endopleura.—The innermost skin of a seed coat.

Endoptile.—Said of an embryo whose plumule is rolled up by the cotyledon, as in Endogens.

Endorhizal.—That kind of germination in which the original radicle forms a sheath round the first root which comes from within the former.

Endos.—In Greek composition means *within*, or in the inside of anything.

Endosmose.—That force which causes a viscid fluid lying within a cavity to attract to itself a watery fluid through an organic membrane.

Endosperm.—The albumen of a seed.

Endostome.—The aperture in the inner integument of an ovule.

Endothecium.—The lining of an anther.

Enervis.—When there are no ribs or veins visible.

Ennea.—In Greek compounds means *nine.*

Enneagynia.—An artificial order, characterized by flowers with nine free pistils, styles, or stigmas.

Enneandria.—The ninth class in the artificial system of Linnæus, containing a few plants which have nine stamens in each flower.

Enneapetalous.—Having nine petals.

Ensiform, Ensate.—Quite straight, with the point acute, like the blade of a broadsword or the leaf of an Iris.

Enodis.—Where a stem, or other part, is without joints or knots.

Entangled. — Intermixed in so irregular a manner as not to be readily disentangled, as the hairs, roots, and branches of many plants.

Entire.—Having no kind of marginal division.

Entophyte. — A plant which grows from within others, as some rhizanths and *Fungi.*

Epacridaceæ, (*Epacrids.*)—A natural order of Corollifloral Dicotyledons belonging to Lindley's Erical Alliance. They are shrubby plants, with usually simple al-

ternate leaves, and regular and perfect flowers in spikes or racemes. The fruit is either fleshy or capsular; embryo with albumen and very small cotyledons. The plants are natives of the Indian Archipelago and Australia. The Epacris is a beautiful flowering green-house plant. There are thirty-two known genera and 336 species. *Epacris*, *Styphelia*, and *Dracophyllum* are examples of the order.

Ephemerus, *Ephemeral.* — Existing for, or less than, one day; as where a corolla expands for a few hours at most, and then fades.

Epi.—In Greek compounds means *upon*.

Epiblast.—A small transverse plate (a second cotyledon) found on the embryo of some grasses.

Epiblema. — An epidermis consisting of thick-sided flattened cells.

Epicalyx.—The involucellum, or external series of envelopes beyond the calyx, as in *Malva*.

Epicarp.—The outer skin or coat of the pericarp, when ripened into a fruit.

Epichile.—The upper half of the lip of an Orchid, when that organ is once jointed or strangulated.

Epiclinal.—Placed upon the disk or receptacle of a flower.

Epidermis.—The true skin of a plant, immediately underlying the cuticle.

Epigœus.—Growing on land, in contradistinction to growing in the water. Also when any part of a terrestrial plant grows close to the earth.

Epigenous.—Growing upon the surface of a part, as many *Fungi* on the surface of leaves.

Epigone.—The membraneous bag or flask which incloses the spore-case of a Liverwort or scale Moss when young. Also, the nucleus of a *Chara*.

Epigynous.—Upon the ovary; a term applied when the outer whorls of the flower adhere to the ovary, so that their upper portions alone are free, and appear to be seated on it, as in *Umbelliferæ*, etc.

Epipetalous. — Inserted or growing on a petal.

Epiphlœum.—The layer of bark immediately below the epiderm. The cellular integument of the bark.

Epiphragm.—A membrane drawn over the mouth of the spore-case in Urn Mosses, and closing it up.

Epiphyllous.—Either growing upon or inserted on a leaf.

Epiphyte, (adj. *Epiphytal.*)—Plants which grow upon the surface of others, without deriving any nutriment from them, as many Mosses and Orchids.

Epipterous.—Having a wing at the summit.

Epirhizous.—Growing on a root.

Episperm.—The skin of a seed.

Espispore.—A skin that covers some spores.

Epithelium.—An epidermis consisting of young, thin-sided cells, filled with homogeneous, transparent, colorless sap.

Equal.—Where one part is of the same general form, disposition, and size, as some other part with which it is compared; applied to petals and sepals when they are equal in size and shape with each other.

Equilateral.—Having equal sides.

Equinoctial.—Plants whose flowers expand and close at particular hours of the day.

Equisetaceæ, (*Equisetum.*)—A natural order and genus of the higher *Cryptogamia*, remarkable for the external resemblance which they bear in habit to *Casuarina* or *Ephedra*, and, as regards the heads of fructification, to *Zamia*. All resemblance, however, ceases there, and the natural affinities of the plants are with Ferns.

EQU

Equitant.—A mode of vernation, or of arrangement of leaves with respect to each other, in which the sides or edges alternately overlap each other, as in *Morœa iridioides.*

Erectly-spreading.—Between erect and spreading.

Erecto-patent.—Between erect and spreading.

Eremus.—A ripe carpel separating from its neighbors and standing apart.

Ergot.—A disease of Corn, Rye, etc., produced by Fungi.

Erianthus.—When some parts of a flower are covered with a woolly or cottony pubescence.

Ericaceæ, (*Heathworts.*)—A natural order of Corollifloral Dicotyledons, typical of Lindley's Erical Alliance. They are shrubs or undershrubs, with evergreen, rigid, entire, whorled, or opposite leaves without stipules. *Arbutus Unedo* is the Strawberry Tree. *Rhododendron arboreum* sometimes reaches in India a height of forty feet, and some species grow at an elevation of 16,000 to 18,000 feet in the Himalayas. Several species of *Azalea*, *Rhododendron*, and *Kalmia* are natives of the United States. The plants of this order are highly prized for the beauty of their flowers. There are about fifty known genera and nine hundred species. *Erica*, *Rhododendron*, *Kalmia*, *Clethra*, *Arbutus*, and *Ledum* are examples of this order.

Erinus.—Prickly, rough.

Eriocaulaceæ, (*Pipeworts.*)—A natural order of incomplete Monocotyledons, included in Lindley's Glumal Alliance among the Endogens. They are marsh plants, with narrow, spongy leaves. There are ten known genera and two hundred and twenty species. *Eriocaulon*, *Cladocaulon*, and *Philodice* are examples of the order.

EST

Erion.—In Greek compounds means *woolly.*

Erisma.—The rachis or axis of grasses.

Erose, *Eroded.*—Having the margin irregularly toothed, as if bitten by an animal; a term used to express a particular kind of denticulation, as in *Salvia pinnata.*

Erosely-toothed.—When the teeth are gnawed or erose.

Eroso-dentate.—Toothed in a very irregular manner, the toothing being eroded.

Erostrate.—Not having a beak.

Erubescent.—Reddish, blush-colored.

Erythrine.—A coloring matter found in Lichens.

Erythro.—In Greek compounds means any pure red.

Erythrophyl.—The red coloring matter of plants.

Erythrostomum.—Any aggregate fruit like that of a Strawberry or a *Ranunculus.*

Escalloniaceæ, (*Carpodeteæ*, *Escalloniads.*)—A natural order of Calycifloral Dicotyledons belonging to Lindley's Grossal Alliance of epigynous Exogens. They are evergreen shrubs, often odoriferous, with alternate exstipulate leaves, and axillary, conspicuous flowers. The order is considered by Bentham and Hooker as a tribe of *Saxifragaceæ*, with which they similarly unite *Ribesiaceæ.* The plants are chiefly natives of South America, but some are found in the southern parts of Australia and New Zealand. There are seven known genera and about sixty species. *Escallonia*, *Itea*, and *Carpodetus* are examples of the order.

Escens.—A termination equivalent to the English *ish*; thus, rub*escens*, redd*ish.*

Essential.—The most prominent characteristics by which a particular species or a particular group of plants is separated from all others.

Estivation.—The manner in which the parts

are arranged in a flower bud. See *Æstivation.*

Etærio, Etairium.—Such a kind of aggregate fruit as that of the Strawberry or the *Ranunculus.*

Etiolated.—Deprived of color by being kept in the dark; blanched.

Euphorbiaceæ, (*Pseudantheæ, Trewiaceæ, Spurgeworts.*)—A natural order of monochlamydeous Dicotyledons, typical of Lindley's Euphorbial Alliance of diclinous Exogens. They are trees, shrubs, or herbs, with opposite or alternate, often stipulate leaves, and involucrate, incomplete, sometimes achlamydeous flowers. The plants abound in South America, and are also found in North America, Africa, India, and Europe. They are generally acrid and poisonous, and contain much milky juice. Some yield starch, and others oils and Caoutchouc. Castor Oil is obtained from the seeds of *Ricinus communis* and Croton Oil from *Croton Tiglium.* The seeds of *Jatropha Curcas,* the Physic Nut, are purgative. *Stillingia sebifera* is the Tallow Tree of China, the fatty matter being procured from the fruit. Dyes are supplied by *Crozophora tinctoria* and *Rottlera tinctoria.* African Oak or Teak is yielded by *Oldfieldia Africana;* Caoutchouc by *Siphonia elastica, S. lutea, S. brevifolia, S. Braziliensis,* and *S. Spruceana;* and the poisonous Manchineel by *Hippomane Mancinella. Janipha Manihot* or *Manihot utilissima* furnishes Cassava and Tapioca, which consist of starchy matter from its root. *Colliguaja odorifera* has peculiar jumping seeds, owing to their becoming the habitation of the larva of an insect. Box-wood is the product of *Buxus sempervirens.* There are other useful and curious species, some of which are cultivated for their

beautiful flowers. There are 230 known genera and about 2,600 species. *Euphorbia, Phyllanthus, Croton, Jatropha, Siphonia, Ricinus, Hura, Andrachne,* and *Poinsettia* (which see) are examples of the order.

Evanescenti-venose.—When lateral veins disappear within the margin.

Evittate.—Not striped; destitute of vittæ.

Evolutio.—The act of development.

Evolved.—Unfolded.

Ex.—See *E.* But *exo* signifies outward or external, as in Exogens and exintine, quasi exointine.

Exalbuminose.—Having no albumen.

Exanthemata.—Skin diseases, blotches of leaves, etc.

Exareolate.—Not spaced out.

Exarillate.—Without arils.

Exaristate.—Destitute of an arista, awn, or beard.

Excentrical.—Out of the center; flying off from the center, as in *Agaricus.*

Exasperate.—Covered with hard, short, stiff points.

Excipule.—That part of the thallus of a Lichen which forms a rim and base to the shield. Also a similar part in certain *Fungi.*

Excisa.—Bluntly cut off.

Excitability.—That faculty by which living beings take cognizance of external stimuli, and obey their influence. This is considered by some vegetable physiologists to be the sole vital property distinguishable in plants.

Excoriate, Excoriated.—Stripped of the bark or skin.

Excretion.—Any superfluous matter thrown off by the living plant externally; the action by which a superabundance of secreted matter is rejected from a secreting vessel. Also the matter itself thus excreted; gum, resin, etc., are examples.

Excurrent.—Projecting or running beyond the edge of anything; running out. When a stem remains always central, all the other parts being regularly disposed round it, as in the stem of a Fir Tree.

Exiguus.—Small, slender, minute.

Exindusiate.—Without an indusium.

Exintine.—The middle coat of a pollen grain; or, if three or four coatings are present, then that next the intine, which see.

Exogens.—A name given to one of the great classes of the vegetable kingdom, corresponding with the *Dicotyledons*. The name Exogen is from the Greek, and signifies *outward* and *to grow*, meaning growing outwardly, and has reference to the manner in which the woody circles are produced, viz., from the center outwardly toward the circumference. The age of an exogenous tree, especially in temperate climates, may be determined by counting the number of zones or circles in the woody stem, each circle marking one year's growth, and the last-formed circle being external. The characters of the class are given under *Dicotyledons*, which see.

Exogenous.—Growing by addition to the outer parts of the stem.

Exorhiza.—That kind of germination in which the point of the radicle itself becomes the first root.

Exosmose.—That force which causes a viscid fluid lying on the outside of an organic membrane to attract watery fluid through it.

Exostome.—The aperture in the outer integument of an ovule.

Exotic.—Plants that are brought from foreign countries.

Expanded.—When a flower is fully blown. See *Diffuse*.

Exscapus.—Without a stalk.

Exserted.—Where one part protrudes beyond another by which it is surrounded; as the stamens or styles beyond the mouth of some tubular corollas.

Exsuccous.—Juiceless.

Exterior.—Exposed, and not invested by any part or covering.

Extine.—The outer coat of a pollen grain.

Extra.—On the outside of or beyond; as, *extra-axillaris*, beyond the axil; *extra-foliarius*, beyond a leaf; *extra-medianus*, beyond the middle.

Extrorse.—Turned outward from the axis of growth of the series of organs to which it belongs.

Eye.—A term in gardening for a leaf-bud; also for the center or the central markings of a flower.

F.

Fabaceæ.—The Bean or leguminous family, a natural order of Calycifloral Dicotyledons, better known by the name *Leguminosæ*, under which head their peculiar characteristics are described. The plants are distinguished either by their papilionaceous (pea-like) flowers, or by their fruit being a legume, a pod like that of the Pea or Bean.

Facies.—The general habit or appearance assumed by each particular species.

Fœcula.—The farinaceous matter which forms starch, etc.

Falcate, Falciform.—Plane and curved in

any degree, with parallel edges, like the blade of a sickle; as the pod of *Medicago falcata.*

False Bark.—That layer on the outside of the stem of an Endogen which consists of cellular tissue, into which fibrous tissue passes obliquely. See *Bark.*

False-nerved.—When veins have no vascular tissue, but are formed of simple, elongated cellular tissue, as in Mosses, Seaweeds, etc.

Family.—A synonym for "Order."

Fan-shaped.—Plaited like a fan, as the leaf of *Brassus flabelliformis.*

Fan-veined.—When the veins or ribs are disposed like those of a fan.

Fariam.—In rows: thus, *bifariam,* in two rows; *trifariam,* in three rows, etc.

Farinaceous.—Having the texture of flour, as the albumen of Wheat.

Farinose.—Covered with a white, mealy substance, as the leaves of the Auricula, *Primula farinosa.*

Fascia, (adj. *Fasciate.*)—A cross band of color.

Fasciarius.—Narrow; very long, with the two opposite margins parallel, as the leaves of the Seawrack.

Fasciated.—When a stem becomes much flattened, instead of retaining its usual cylindrical figure, as in the Cockscomb, the *Lilium monstrosum,* etc. Used also for Banded and Band-shaped, which see.

Fascicle, Fascicled, Fasciculated.—Where several similar parts proceed from, or originate at the same spot, and are collected, as it were, into a bundle, as the tubers of the Dahlia, or the leaves of the Larch.

Fasciculato-ramose.—When branches or roots are drawn closely together, so as to be almost parallel.

Fastigiate.—Tapering to a narrow point, pyramidal; as where many like parts are parallel, and point upwards, as the branches of *Populus fastigiata.*

Feather-veined.—Having veins which proceed from a midrib at an acute angle.

Feathery.—Consisting of long hairs which are themselves hairy, as the pappus of the Dandelion.

Faux.—The orifice of a calyx or corolla.

Faveolate.—Honeycombed; the same as *Favose,* which see.

Favose.—Excavated in the manner of a section of honeycomb, as the receptacle of many Composites.

Favoso-areolate.—Divided into spaces resembling the cavities of honeycomb.

Favoso-dehiscent.—Appearing honeycombed after dehiscence, as the anther of the Mistletoe, (*Viscum.*)

Fenestra, (adj. *Fenestrate.*)—An opening through a membrane, like a window in a wall.

Fer, Ferus.—A Latin termination signifying the carrying of something, as *florifer,* the carrier of flowers.

Fernery.—See *Wardian Case.*

Ferns.—The highest of the sub-groups of Acrogens, technically called *Filices,* which see.

Ferruginous.—Iron-colored; rusty; light brown, with a little mixture of red.

Fertile.—Producing fruit. Also, capable of effecting the process of fertilization; or of producing perfect seeds, as the anthers when filled with pollen; fertilized.

Fertilization.—The reproductive function by which the action of the pollen renders the ovule fertile.

Fertilizers.—This word is generally used only in connection with commercial fertilizers, or concentrated fertilizers, though, of course, in its full significance it refers to any substance suitable for the food of plants. The best known fertiliz-

ers of commerce are Peruvian Guano and Bone Dust, though there are numbers of others, such as Fish Guano, Dry Blood Fertilizer, Blood and Bone Fertilizer, with the various brands of Superphosphates, all of more or less value for fertilizing purposes. It is useless to go over the list, and we will confine ourselves to the relative merits of pure Peruvian Guano and pure Bone Dust. Guano at $65 per ton we consider relatively equal in value to Bone Dust at $40 per ton, for in the lower-priced article we find we have to increase the quantity to produce the same result. Whatever kind of concentrated fertilizer is used, we find it well repays the labor to prepare it in the following manner before it is used on the land: to every bushel of Guano or Bone Dust add three bushels of either leaf mould, (from the woods,) well pulverized dry muck, sweepings from a paved street, stable manure so rotted as to be like pulverized muck, or, if neither of these can be obtained, any loamy soil will do; but in every case the material to mix the fertilizers with must be fairly dry and never in a condition of mud; the meaning of the operation being, that the material used is to act as a temporary absorbent for the fertilizer. The compost must be thoroughly mixed, and if Guano is used, it being sometimes lumpy, it must be broken up to dust before being mixed with the absorbent. The main object of this operation is for the better separation and division of the fertilizer, so that, when applied to the soil, it can be more readily distributed. Our experiments have repeatedly shown that this method of using concentrated fertilizers materially increases their value, probably twenty per cent. The mixing should be done a few months previous to spring, and it should, after being mixed, be packed away in barrels, and kept in some dry shed or cellar until wanted for use. Thus mixed, it is particularly beneficial on lawns or other grass lands. The quantity of concentrated fertilizer to be used is often perplexing to beginners. We give the following as the best rules we know, all derived from our own practice in growing fruits, flowers, and vegetables: Taking Guano as a basis, we would recommend for all vegetables or fruit crops, if earliness and good quality are desired, the use of not less than 1,200 pounds per acre, (an acre contains 4,840 square yards, and cultivators for private use can easily estimate from this the quantity they require for any area,) mixed with two tons of either of the materials recommended. If Bone Dust is used, about one ton per acre should be used, mixed with three tons of soil or the other materials named. When used alone, without being mixed with the absorbent, it should be sown on the soil after plowing or digging, about thick enough to just color the surface, or about as thick as sand or sawdust is sown on a floor, and then thoroughly harrowed in if plowed, or, if dug, chopped in with a rake. This quantity is used broadcast by sowing on the ground after plowing, and deeply and thoroughly harrowing in, or if in small gardens, forked in lightly with the prongs of a garden fork or long-toothed steel rake. When applied in hills or drills, from 100 to 300 pounds should be used to the acre, according to the distance of these apart, mixing with soil, etc., as already directed.

FER

When well rotted stable manure is procurable at a cost not to exceed $2 or $3 per ton, whether from horses or cows,

it is preferable to any concentrated fertilizer. Rotted stable manure, to produce full crops, should be spread on the ground not less than three inches thick, and should be thoroughly mixed with the soil by plowing or spading. The refuse hops from breweries form an excellent fertilizer, at least one-half more valuable, bulk for bulk, than stable manure. Other excellent fertilizers are obtained from the scrapings or shavings from horn or whalebone manufactories. The best way to make these quickly available is to compost them with hot manure in the proportion of one ton of refuse horn or whalebone with fifteen tons of manure. The heated manure extracts the oil, which is intermingled with the whole.

The manure from the chicken or pigeon house is very valuable, and when composted as directed for Bone Dust and Guano, has at least one-third their value. Castor oil pomace is also valuable.

Poudrette is the name given to a commercial fertilizer, the composition of which is night soil and dried swamp muck or charcoal dust as an absorbent. It is sold at about $12 to $15 per ton, and at that price may be equal in value, if too much of the absorbing material is not used, to Bone Dust at $40 per ton.

Salt has little or no value as a fertilizer, except as a medium of absorbing moisture. For experience shows that soils impregnated by a saline are no more fertile than those inland out of the reach of such an atmosphere.

Fiber, Elementary.—That thread which is turned round the interior of the tubes that are called spiral vessels, or of any similar kind of tissue.

Fibril, Fibrillæ, (adj. *Fibrillose.*)—The roots of Lichens; any kind of small thread-shaped root; a fine, ultimate, hair-like subdivision of the root, or hair-like appendages to its branches.

Fibrous.—Containing a great proportion of woody fiber, as the rind of a Cocoanut; composed of fibers.

Fibro-vascular.—Consisting of woody tissue and spiral or other vessels.

Fiddle-shaped.—Obovate, with one or two deep recesses or indentations on each side, as the leaves of the Fiddle Dock, *Rumex pulcher.*

Fidus, Fissus.—Divided *half way* into two or more parts.

Filament.—The stalk of the anther; any kind of a thread-like body.

Filices.—One of the principal groups of Cryptogams, some of the leading peculiarities of which will be found explained in the article *Acrogens.* They are commonly called Ferns, and consist of arborescent or herbaceous perennials, very rarely annual plants, those of arborescent habit having a trunk varying from two or three to sixty or eighty feet in height, and formed of the consolidated bases of the fronds, surrounding a soft central mass of tissue. Those of herbaceous habit either have a caudex formed on a plan similar to the arborescent kinds, but on a smaller scale, the young fronds forming the growing point, or have a more or less fleshy rhizome, whose growing point is in advance of the development of the fronds, which are produced from its sides instead of its apex. All true Ferns may be recognized by the circinate growth of their young fronds or leaves, and by their hypophyllous fructification.

Many schemes have been proposed for the classification of Ferns, but that seems to be preferable which is based on the

modifications of the vascular system in conjunction with the fructification. All Ferns may be referred to one of the groups *Ophioglossaceæ*, *Marattiaceæ*, or *Polypodiaceæ*, of which the first two, sometimes called pseudo-Ferns, are very limited, while the latter, containing the true Ferns, includes the greater portion of all the known species.

Filicales.—That alliance of Acrogens to which the Ferns belong.

Filiform, Filiformis.—Cylindrical and slender, like a thread.

Filipendulous.—Where tuberous swellings are developed in the middle or at the extremities of filiform rootlets, as in *Spiræa filipendula.*

Fimbria.—A fringe. An elastic toothed membrane situated beneath the operculum in Urn Mosses.

Fimbriate.—Fringed.

Fimbriato-laciniate.—Having the edge cut up into divisions which are fimbriated.

Fimbrilliferous.—Bearing many little fringes, as the receptacle of some Composites.

Fimetarious.—Growing on or amid dung.

Fingered.—The same as digitate, which see.

Fish Guano.—See *Fertilizer.*

Fissidenteæ.—A natural order of Mosses, remarkable for their peristome being like that of *Dicranum*, or almost rudimentary, accompanied by a totally different habit, due to the flat, broad-keeled, sheathing leaves. The species grow in running water, and one only has at present been found in Europe. *Drepanophyllum*, a magnificent Moss, is found in Cayenne.

Fissiparous.—Propagating by a sub-division of the interior of a cell into two or more other cells, by the production of a membraneous partition or septum, from the lining of the mother cell.

Fissus.—Divided *half way*, usually into a determinate number of segments. We say, *bifidus*, split in two; *trifidus*, in three, and so on; or *multifidus*, when the segments are very numerous.

Fistular, Fistulous.—This is said of a cylindrical or terete body which is hollow, but closed at each end, as the leaves and stem of the Onion.

Flabellatus, Flabelliformis.—Fan-shaped.

Flaccid.—Feeble, weak; bending without elasticity, as some peduncles under the weight of flowers; wilted or relaxed in consequence of the loss of moisture.

Flagelliform.—Flexible, narrow, and tapering, like the thong of a whip, as the runners of many plants.

Flagellum.—A twig or small branch; also a runner like that of a Strawberry.

Flammeus, Flame-colored.—Very lively scarlet; fiery red.

Flavedo.—Yellowness; a disease in plants in which the green parts assume that color.

Flavescens, Flavidus, Flavus.—Pale yellow, or pure yellow diluted.

Flavo-virens.—Green, much stained with yellow.

Fleshy.—When the flesh is firm and succulent.

Flexible.—Capable of being bent, but returning with elasticity to its original state.

Flexuose.—Ziz-zag; having a wavy direction, gently bending alternately inward and outward.

Flocci.—Woolly threads found mixed with sporules in *Fungi;* also any wool-like hairs.

Floccose.—Covered with little tufts of hair, like wool.

Flora, (the goddess of flowers.)—The aggregate of all the species of plants inhabiting a particular country.

Floral.—Of or belonging to the flower. *Floral envelopes*, the calyx and corolla, one or both.

Florets.—When many small flowers are collected in clusters or heads, each flower is called a floret. The florets of the *disk* are those which occupy the center of the head of a Composite; while florets of the *ray* occupy the circumference.

Florifer.—Flower bearing.

Floriparous.—Producing flowers.

Florist's Flowers.—"Flowers which, by their beauty or fragrance, power to produce permanent varieties, and facility of cultivation, are so largely in demand as to render them especially worthy of cultivation as an article of commerce." The term is most generally applied to flowers that have "broke" from the original species into varieties, such as the Dahlia, Verbena, Pelargonium, Gladiolus, etc., in distinction from such plants as still hold to their natural condition without variation.

Florus.—In composition is equivalent to *flowered;* thus, *uniflorus* is one-flowered; *biflorus*, two-flowered; *triflorus*, three-flowered; *multiflorus*, many-flowered.

Flos.—A flower.

Flosculi, (adj. *Flosculose.*)—The same as florets, which see.

Flower.—That assemblage of organs in a plant, of which the stamens or pistils, or both, form part.

Flues, single and double.—See *Heating.*

Fluitans.—Floating on the surface of water.

Fluvial, Fluviatile.—Of or belonging to the water.

Fœmineus.—Female, bearing pistils only.

Foliaceous.—Having the form of leaves.

Foliage Plants.—A popular term, though an incorrect one, given to distinguish such plants as are used for decorative purposes, for the beauty of their foliage

rather than for the beauty of their flowers. It is more particularly used for such plants as are used for massing in color; for example, the Achyranthes, Centaureas, (Dusty Millers,) *Pyrethrum aureum*, (Golden Feather,) Coleus, and plants of that class used in "ribbon line" bedding, are called "foliage" plants; though, among plants for inside decoration, the Crotons, Dracænas, Pandanus, Fancy Caladiums, etc., are sometimes so named; but the proper designation for all such plants, whether used for outside or inside decoration, is "Ornamental-leaved Plants," or "Ornamental-foliaged Plants."

Foliar.—Inserted upon, or proceeding from, the leaf; thus a *cirrhus foliaris* is a tendril growing from a leaf.

Foliate.—Clothed with leaves.

Foliation.—The act of leafing; the period when the buds begin to expand.

Foliiparous.—Producing leaves only, as leaf buds.

Foliole, (adj. *Foliolate.*)—A leaflet; the secondary divisions of a compound leaf.

Foliose.—Covered closely with leaves.

Follicle.—An inflated seed-vessel; as that of the *Colutea.*

Foramen.—An aperture. The foramen of an ovule is an aperture through the integuments, allowing the passage of the pollen tubes to the nucleus.

Foraminule.—The ostiolum (which see) of certain *Fungi.*

Forcipate.—Forked, like a pair of pincers.

Forked.—Separating into distinct branches, more or less apart.

Fornix.—Little arched scales in the orifice of some flowers.

Fovea, (adj. *Foveate*, dim. *Foveolate.*)—A small excavation or pit; hence pitted.

Foveole.—The perithecium (which see) of certain *Fungi.*

Fracid.—Of a pasty texture; between fleshy and pulpy.

Frankeniaceæ, (*Frankeniads.*)—A natural order of thalamifloral Dicotyledons, belonging to Lindley's Violal Alliance of hypogynous Exogens. Herbs or undershrubs, with branching stems and opposite exstipulate leaves with a sheathing base. They are chiefly natives of North Africa and the south of Europe; a few are found in South Africa, South America, Australia, and the temperate parts of Asia. They have few properties of importance. There are six known genera and upward of thirty species. *Frankenia*, *Beatsonia*, and *Hypericopsis* are examples.

Free.—Not adhering to anything else; not adnate to any other body.

Fringed.—The same as fimbriate, which see.

Frond, *Frons.*—A combination of leaf and stem, as in many *Algæ* and Liverworts; also improperly applied to a leaf which bears reproductive bodies, as that of dorsiferous Ferns; generally applied to Ferns. Linnæus applied it to Palm leaves, and thus destroyed its meaning.

Frondose.—Covered with leaves; bearing a great number of leaves.

Frondiparous.—A monstrosity, consisting in the production of leaves instead of fruit.

Frosted.—Covered with glittering particles, as if fine dew had been congealed upon it.

Fructification.—The parts of the flower, or, more properly, the fruit and its parts; the phenomena which attend the development of the fruit from its first appearance to maturity. The distribution or arrangement of the fruit itself on any plant.

Fructiparous.—A monstrosity, consisting in the production of several fruits, instead of the one which is metamorphosed.

Fruit.—That part of a plant which consists of the ripened carpels, and the parts adhering to them; the seed vessel with its ripe contents. *Spurious fruit* is any kind of inflorescence which grows up with the fruit, and forms one body with it, as a Pine cone.

Frustules.—The joints into which the Brittleworts separate.

Frustulose.—Consisting of small fragments.

Frutex, (adj. *Fruticose*, *Frutescent.*)—A shrub; a woody plant which does not form a trunk, but divides into branches nearly down to the ground.

Fruticulus.—A small shrub.

Fucaceæ.—A natural order of dark-spored *Algæ*, consisting of olive-colored, inarticulate Seaweeds, whose spores are contained in spherical cavities in the frond. See *Algæ*.

Fugacious, *Fugax.*—Soon falling off, or perishing very rapidly.

Fulciens.—Supporting or propping up anything; said of one organ which is placed beneath another.

Fulcra, (adj. *Fulcrate.*)—Additional organs, such as pitchers, stipules, tendrils, spines, prickles, hairs, etc.

Fulcraceous.—Of or belonging to the fulcra.

Fuliginous, *Fuliginose.*—Dirty brown, verging upon black.

Fulvous.—Tawny yellow or fox-colored, as in *Sanseviera fulvocincta.*

Fumariaceæ, (*Fumeworts.*)—A natural order of thalamifloral Dicotyledons belonging to Lindley's Berberal Alliance of hypogynous Exogens. They are herbs with brittle stems, watery juice, alternate, cut, exstipulate leaves, and irregular, unsymmetrical flowers. They are chiefly natives of the temperate regions of the

northern hemisphere; a few occur at the Cape of Good Hope. They possess slight bitterness and acridity. There are eighteen known genera and about 160 species. *Fumaria, Dielytra, Corydalis,* and *Hypecoum* are examples of the order.

Fumous, Fumose.—Gray, changing to brown; smoke-colored.

Fumeworts.—The plants of the order *Fumariaceæ.*

Fumigating.—See *Insects.*

Funalis.—Formed of coarse fibers resembling cords.

Function.—The peculiar action induced by the agency of vitality upon any part of a living plant, when placed under certain influences.

Fundamental.—Constituting the essential part of anything; in a plant, the axis and its appendages. Fundamental organs, the nutritive organs essential to the existence of the individual.

Fundus Plantæ.—The collar, or place of juncture of the root and stem.

Fungals.—The plants of the order *Fungi,* including *Lichens.*

Fungi, (Fungals.)—A large class of Cryptogams, distinguished from *Algæ* more by habit than by any general character. They are divided into a number of classes.

Fungiform, Fungilliform.—Cylindrical, having a rounded, convex, overhanging extremity.

Funginous.—Of or belonging to a Fungus.

Funicular.—Having threads or Funiculæ, which see.

Funiculus, Funicle.—The cord or thread which sometimes connects the ovule or seed to the placenta.

Funiliform.—Formed of cord-like fibers; resembling a cord.

Funnel-shaped.—A calyx or corolla, or other organ, in which the tube is obconical, gradually enlarging upward into the limb, so that the whole resembles a funnel, as in the Convolvulus or Morning Glory.

Furcate.—Having long terminal lobes, like the prongs of a fork, as *Ophioglossum pendulum.*

Furfuraceous.—Scurfy; covered with soft scales, which are easily displaced.

Furrowed.—Marked by longitudinal channels, as the stem of the Parsnip.

Fuscous.—Brown, with a grayish or blackish tinge.

Fusiform.—Spindle-shaped; thick, tapering to each end, like the root of a long Radish. Sometimes conical roots are called fusiform.

G.

Gala, Galacto.—In Greek compounds is equivalent to *milk* or white as milk.

Galea.—The helmet or arched part of a flower, always placed at the back, that is, next to the axis.

Galeworts.—Lindley's name for the *Myricaceæ.*

Galiaceæ, (Stellates, Madderworts.)—A natural order of calycifloral Dicotyledons belonging to Lindley's Cinchonal Alliance of epigynous Exogens. Natives of the northern parts of the northern hemisphere, and of high mountains in South America and Australia. Some of the

plants have tonic qualities and others are used for dyeing. There are ten known genera and about 380 species. *Galium*, *Asperula*, and *Rubia* are examples of the order.

Galls.—Excrescences of various kinds and forms produced in plants by the presence of the larvæ of different insects.

Gamo.—In Greek compounds means, united by the edges; thus, *gamophyllus* signifies leaves united by their edges; *gamosepalous* means monosepalous; *gamopetalous*, monopetalous.

Ganglia.—The mycelium (which see) of certain *Fungi*.

Gas Tar or *Coal Tar.*—This has been used to a considerable extent on wood-work as a preservative, such as benches, gutters, posts, and other parts of greenhouse structures. We are inclined to believe it is of very little value for that purpose, unless for gutters or other outside wood-work, and then only if it is put on annually, so as to form a skin or coating to prevent the penetration of moisture. Its use inside is often fraught with danger, particularly whenever exposed to a high temperature, say 100 degrees, as a gas is evolved that is quickly destructive to plants. A not unusual blunder in putting hot-water pipes in the greenhouse or grapery is to paint them with coal tar; and many fall into this error every season, in spite of all the warnings given. When the hot-water pipes have been painted with coal tar, just as soon as the pipes are heated up by firing, gas is emitted most destructive to plants, which is seen in the showers of falling leaves and flowers, after a few hours of firing. When any one has been unfortunate enough to fall into this blunder, there is no remedy but to take down the

pipes and build strong fires under them sufficient to drive out every particle of the gas tar. We have seen every imaginable remedy tried, but all was of no avail; for the tar penetrates through the pores of the metal; and though the surface is scraped entirely clean, the gas is given out on the application of heat just as bad as if the surface had not been scraped. So that, as we have before said, there is no known remedy except the troublesome and expensive one of taking the pipes down, and burning the tar out of them, which is always effectual if properly done.

Gas Lime.—This is the refuse lime thrown out from the gas-houses, to which has been ascribed great qualities, not only as a fertilizer, but, at the same time, as an insect destroyer. We much doubt the last quality ascribed to it, and know that it is not only worthless as a fertilizer, but that its use, particularly when it has been used fresh, is most injurious to vegetation, and would therefore advise strongly against its use on land for any purpose.

Geminate.—Growing in pairs.

Gemini.—Two together.

Geminiflorous.—When two flowers grow together.

Gemma.—A leaf bud; leaf buds are also sometimes called *foliiferæ gemmæ*, and flower buds *floriferæ gemmæ*.

Gemmule.—The plumule; also the ovule.

Gemmatio.—The act of budding; the manner in which young leaves are folded up in the bud prior to its unfolding.

Gemmation.—Either the disposition of the buds on plants, or the period of their expansion.

Geniculate.—Where any part is bent abruptly, so as to form a decided angle, as the stems of many grasses.

GEN

Gentianaceæ, (*Gentianworts.*)—A natural order of corollifloral Dicotyledons belonging to Lindley's Gentianal Alliance of perigynous Exogens. They are herbs, rarely shrubs, with opposite, entire, exstipulate, usually ribbed leaves, and showy flowers. They are found in almost all parts of the world, some at high elevations, and others in hot tropical plains. They are generally bitter; some are narcotic. There are about seventy known genera and upward of 500 species. *Gentiana, Lisianthus, Menyanthes, Villarsia, Swertia,* and *Chlora* are examples of the order.

Genus.—A family of plants agreeing in their flower and fruit; an assemblage of species possessing certain characters in common, by which they are distinguished from all others.

Geraniaceæ, (*Cranesbills.*)—A natural order of thalamifloral Dicotyledons, characterizing Lindley's Geranial Alliance of hypogynous Exogens. They are herbs or shrubs with swollen joints, and opposite or alternate leaves, which are usually palmately veined and lobed, often stipulate. The plants are distributed over various parts of the world. The species of *Pelargonium* are abundant at the Cape of Good Hope. It is this genus that has furnished the beautiful varieties that ornament the green-house in winter and the garden in summer, one class of which are commonly known as Scarlet Geraniums. The species of *Geranium* and *Erodium* are mostly natives of Europe, North America, and Northern Asia. There are about 540 species. *Geranium, Pelargonium, Erodium,* and *Monsonia* are examples of the order.

Germination.—The first act of vegetation in a seed, commonly called "sprouting."

GLA

Gesneraceæ, (*Cyrtandraceæ, Didymocarpeæ, Gesnerworts.*)—A natural order of corollifloral Dicotyledons belonging to Lindley's Bignonial Alliance of perigynous Exogens. They are herbs or shrubs, often growing from scaly tubers, with wrinkled, usually opposite leaves and showy flowers. They are natives of various parts of the world, but chiefly the warmer regions of America. The succulent roots are occasionally edible, and some of the species yield a dye. The leaves of some of them produce buds when laid on the soil, similar to Begonias of the Rex type. There are upward of eighty genera and nearly 300 species. *Gesnera, Gloxinia, Achimenes, Streptocarpus,* and *Cyrtandra* are examples.

Gesnerworts.—A name proposed by Lindley for the *Gesneraceæ*.

Gibber.—A pouch-like enlargement of the base of a calyx, corolla, etc.

Gibberose, Gibbous, Gibbose.—More convex or swollen in one place than another.

Gills.—The lamellæ or plates growing perpendicularly from the cap or pileus of an Agaric or Mushroom.

Gilvus.—Dull yellow, with a mixture of gray and red.

Githagineus.—Greenish-red.

Glabrous.—Without hair or other covering, as the Camellia leaf.

Gladate.—Sword-shaped, as the leaves of an Iris.

Glans.—An inferior fruit, one-celled by abortion, not dehiscing, (which see,) containing one or two seeds, and seated in a cupule, as in the acorn.

Glands, Glandules.—Wart-like swellings found on the surface of plants, or at one end of their hairs, serving the purpose of secreting organs. They are extremely various in form.

Glandular.—Furnished with glands.

Glandulose, Glanduliferous.—Bearing glands.

Glanduloso-serrate.—Having serratures tipped by glands.

Glareose.—Growing in gravelly places.

Glaucescent.—Dull green, passing into grayish blue.

Glaucous.—Covered with a fine bloom, like that of the Plum or *Echeveria secunda glauca.*

Glazing.—The operation of glazing green-houses is now well understood in the vicinity of large cities; but in many sections of the country the awkward and imperfect methods of twenty years ago are still in use. The plan now almost universally adopted is to "bed" the glass in thin putty, lapping only about one-sixteenth part of an inch, and using large-sized glazier's "points" to keep the glass in position. These are triangular, and one corner is turned down, so that, when driven into the wood, it keeps the glass in place, preventing it from slipping down. No putty is used on the top, but two coats of thick white lead are put on, so as to fill up any crevice that may be between the glass and the wood. The size of glass varies according to what it is wanted for. If for portable 3×6 feet sashes, they will be stronger by using 6×8 inch glass put in the 6-inch way; but if for green-houses or graperies, requiring as much light as possible during the winter months, not less than 10×12 glass should be used, put in the 12-inch way. The quality of the glass is a matter of cost; when that is not of consequence, the first quality double thick American or French glass should be used. For such, however, as begin with limited means, or who wish to be economical in such matters, second quality

single thick American glass will answer, provided it is clear from blotches, such as will form a lens to concentrate the sun's rays, and burn the foliage. This is one of the most important points in choosing glass, and from which the uninitiated often suffer.

Globose.—Round like a globe, as the heads of flowers of *Echinops.*

Globuline. — Elementary cells; starch grains.

Glochis, (adj. *Glochidate.*) — A barb; hooked back at the point like a fish-hook.

Glomerate.—Collected into close heads or parcels.

Glomeruli.—The same as Soredia, which see.

Glomerulus.—A cluster of capitules inclosed in a common involucre, as in *Echinops.*

Glossology.—That part of botany which teaches the meaning of technical terms.

Gluma, Glume.—The exterior series of the scales which constitute the flower of a grass.

Glumaceous.—Plants are said to be glumaceous when their flowers are like those of grasses.

Glutinium.—The flesh of certain *Fungi.*

Glutinose.—Covered with a sticky exudation.

Gnomonical.—Bent at right angles.

Gongylodes.—Having an irregular, roundish figure.

Gracilis.—Slender, applied to parts which are long and narrow.

Grafting.—This differs only from budding, (which see,) inasmuch as the operation is usually performed on deciduous plants when in a partially dormant condition, and that larger portions of the shoots are taken. The different forms of grafting are known as "wedge," "whip," "side"

grafting, etc. Wedge grafting consists in sawing off the stock to be grafted, and shaping the "cion" or "graft" like a wedge, splitting the sawed off stock an inch or two, and inserting the wedge-shaped graft, being careful to let the bark of the graft join the bark of the stock. If the stock is more than an inch in diameter a graft should be placed on each side. The whip graft is used for small stocks, which are of the thickness of the cions to be grafted. The stock and cion are cut with a similar slope, an inch or more in length; to best keep them in place before being covered with wax or wax cloth, it is well to cut what is called a "tongue" in the center of each, so that, when placed together, the cion will keep in place, the tongues being interlocked. The whip system is that mostly used in root grafting Roses, Apples, Clematis, etc. After the cion has been attached to the stock by any of the methods of grafting, it is covered over either with a mixture of adhesive clay and cow dung or grafting wax, so as to keep it in position until it starts to grow.

Grafting wax can be purchased in most seed stores, but when wanted in quantity it is made according to the following formula: four pounds rosin, three pounds bees-wax, and two pounds of tallow. This, heated and mixed, will give the grafting wax of the shops. A convenient way to use the grafting wax is to dip in it thin calico or muslin cloth, which can be torn into strips readily, and wrapped around the graft so as to exclude the air.

Graft Hybrids.—This is the term used by Mr. Chas. Darwin, in his work, "Plants and Animals under Domestication," to describe what he believes to be an amalgamation of the stock and the graft, so that there is a seeming blending of the individualities in some few cases, which he cites. This theory of Mr. Darwin's is by no means universally accepted, and it is to be regretted that it should have been propounded with such a sparse array of examples in illustrating such a novel theory.

Grammicus.—When the spots upon a surface assume the form and appearance of letters.

Graniform.—Formed like grains; granular.

Granular, Granulate.—Divided into little knobs and knots, as the roots of *Saxifraga granulata;* covered as if with small grains.

Granules.—Any small particles; grains; the hollow shells which constitute pollen.

Graveolens.—Strong-scented; having a smell which is unpleasant because of its intensity.

Green-house.—The name generally given to all kinds of glass structures. For private purposes the styles are so varied that it would be useless, in this work, to give examples, as in such cases it is always economy to employ a competent green-house architect; but for commercial purposes, in our own establishment, we use exclusively the ridge and furrow style; that is, the houses are joined to each other by a ten or twelve inch gutter. Each house is twenty feet wide at base, four feet high at the gutter, and eleven feet high at the apex, giving an angle to the glass roof of about thirty-five degrees, which slopes equally to east and west. When green-houses are wanted for forcing Roses or other flowers in winter, it is better not to connect them together, but

to make them say twenty feet wide at base, the roof forming what is known as a three-quarter span; that is, the long slope of the roof, which must face south, is about eighteen or nineteen feet long, while the short slope to the north is six or seven feet, both at an angle of about thirty degrees. The front or south wall should be four or five feet high, and the rear or north wall seven or eight feet high, making the apex from the ground level about ten feet. Our space will not admit of details of construction, for which see our work, Practical Floriculture, pages 53 and 266.

Greens.—The common name for Spinach, Cabbage, Kale, and other leafy esculents.

Griseus.—Pure gray, a little verging to blue.

Grossification.—The swelling of the ovary after fertilization.

Grossus.—Coarse; larger than usual; thus, *grosse crenatus*, coarsely crenated; *grosse serratus*, coarsely serrated.

Growing Point.—The soft center of a bud, over which the nascent leaves are formed; and all modifications of it.

Grumous.—Divided into little clustered grains; as the fecula in the stem of the Sago Palm.

Gum.—A vegetable secretion which may be detected in the sap of most plants, and which is excreted by many, and hardens on their surface.

Guttatus.—Spotted.

Gymnogynous.—Having a naked ovary.

Gymnos. — In Greek compounds means *naked* or uncovered.

Gymnosperm.—Bearing naked seeds.

Gynandrous. — Having the stamens, and style, and ovary all blended into one common body, as in *Orchids, Aristolochia*, etc.

Gynixus, Gynizus. — The depressed stigmatic surface of Orchids.

Gynobase.—The growing point inserted between the base of carpels, in a conical manner, so as to throw them into an oblique position.

Gynœcium.—The pistil and all that belongs to it.

Gynophore.—The stalk of the ovary, within the origin of the calyx.

Gynostemium.— The column of Orchids; that is to say, the part formed by the union of stamens, style, and stigma.

Gyrate. — The same as Circinate, (which see;) curled inward like a crozier.

Gyrose.—Turned round like a crook.

H.

Habit.—The general appearance of a plant; its manner of growth, without reference to details of structure.

Habitat.—The situation in which a plant grows in a wild state.

Hœmatiticus.—Dull red, with a slight mixture of brown.

Hand Glass.—This is used to protect Melons, Cucumbers, Tomatoes, or other tender plants, on being set out early in the open ground. They are usually about twenty inches square, with a flat or conical top. A cheaper contrivance for the same purpose is a wooden frame of about the same size, having a small sash to fit the top. Thousands of these are used by the London and Paris gardeners to forward Cucumbers and Melons, but

they are less used here than formerly, as the growing of vegetables in the Southern States for Northern markets renders their use no longer profitable. See *Bell Glass.*

Hanging Baskets.—These are made in a great variety of styles. Those known as "rustic" baskets are made with a wooden bowl to hold the soil, covered with roots of grotesque shapes. They are mostly made of Laurel roots, and are well fitted to give the basket the necessary rough-looking outer covering. The bowls to hold the soil are from six to fifteen inches in diameter, and of a proportionate depth; the three handles form a triangle, meeting at the top, in which an eye is fixed by which to suspend it. Another form is made of wire, and these, when lined with moss to prevent the soil from being washed out, are far the best for the well-being of the plants. Many other beautiful forms are made from pottery ware to represent stumps, logs, rocks, and other natural objects. The plants used for filling hanging baskets of course vary in accordance with the purpose for which they are wanted. If for shady rooms, shady verandas, or shady places out doors, where there is not exposure to drying winds, Mosses (Selaginellas) and Ferns are sometimes used exclusively; or, for the same places, Ivies of all sorts, Tradescantias, Moneywort, (Lysimachia,) Vincas, Ivy-leaved Geraniums, Smilax, Climbing Fern, Fittonias, etc., are plants suited to droop over the sides, while the center plant should be a *Dracœna indivisa* or *D. terminalis,* or some well-marked Croton or Caladium, but not to exceed one foot in height.

For baskets to be placed in the sunlight or partial sunlight, Coleus, Begonias, or bright Geraniums should be used as center plants, with Lobelias, Tropæolums, Petunias, Torenias, Peristrophe, Sedums, etc., to droop. It will be found of great benefit, after setting out the plants in baskets, to cover the soil with an inch or two of (Sphagnum) Moss, to prevent it drying up too quickly; for when the basket is hung in the air, of course it dries up much quicker than when placed on a shelf in the greenhouse or on the ground; and one of the main reasons for success with hanging baskets is the careful attention to watering, which is quickest and most thoroughly done by taking the basket down and immersing it in a tub of water, so that the soil is thoroughly soaked through. This will be necessary once, twice, or thrice a week, according to the position the basket is placed in, the condition of the atmosphere, or the state of the plants; for, if in a shaded position, it will require less water; if the atmosphere is damp, less; or if the plants have not attained vigor of growth, less; the opposite of these conditions, more. The soil used in hanging baskets need in no way differ from that used in the general culture of plants.

Hardy Annuals.—This term applies to those plants that perfect their growth and ripen seed the same year they are sown in the open ground.

Hastate.—Shaped like the head of a halbert; enlarged at the base into two lobes directed nearly horizontally, as in the leaf of Sheep's Sorrel.

Head.—A close terminal collection of flowers surrounded by an involucre, as in Composite flowers.

Heating by Flues.—This is now but little done, except by beginners whose means

are limited, or where a temporary green-house is erected. The objection to heating by flues is, that unless carefully constructed, there is danger from fire, or escape of gas injurious to the plants; still, many large green-house establishments are yet heated by flues, in which plants are grown quite as well as by hot-water heating. In constructing the furnace for flue heating, the size of the furnace doors should be from ten to sixteen inches square, according to the size of space to be heated; the length of the furnace bars from eighteen to forty inches; the furnace should be arched over, the top of the inside of the arch from sixteen to twenty-four inches from the bars. The flue will always "draw" better if slightly on the ascent throughout its entire length; it should be elevated in all cases from the ground, on flags or bricks, so that its heat may be given out on all sides. The inside measure of the brick flue should not be less that 8×14 inches; if tiles can be conveniently procured, they are best to cover with; but, if not, the top of the flue may be contracted to six inches, and covered with bricks. After the flue has been built of brick to twenty-five or thirty feet from the furnace, cement or vitrified drain-pipe, seven, eight, or nine inches in diameter, should be used, as they are not only cheaper, but radiate the heat quicker than the bricks; they are also much easier constructed and cleaned. Care should be taken that no wood-work is in contact with the flue at any place. We have known cases where wood-work has caught fire after the house had been in operation for years; but an unusually strong draft intensified the heat, and the charred timber ignited and totally destroyed the green-house and its contents. It should be taken as a safe rule, that wood-work should in no cases be nearer the flue or furnace than eight inches. In constructing do not be influenced by what the mechanics will tell you, as few of them have any experience in such matters, and are not able to judge of the dangers resulting from wood-work being in close contact with the heated bricks. The position in which the flue is placed in the green-house depends upon its size. Presuming that the green-house to be heated is an equal span of twenty feet wide by fifty feet long, the best way is to start the furnace at the north end, so that the flues will run under the center or middle bench, the top of the furnace being inside the green-house, the fire, of course, being applied in the shed outside. A comparatively new plan of constructing flues is to have the flue run to the end of the green-house, and, returning, connect with the chimney, which is placed on the top of the arch of the furnace. By this method, as soon as a fire is lighted in the furnace, the brick-work forming the arch gets heated, and at once starts an upward draft, which puts the smoke-flue into immediate action and maintains it; hence there is never any trouble about the draft, as in ordinary flues, having the chimney at the most distant point from the furnace. It will be seen that by this plan we not only get rid of the violent heat given out by the furnace, but at the same time it insures a complete draft, and the heated air from the furnace is so rapidly carried through the entire length of the flue, that it is nearly as hot when it enters the chimney as when it left the furnace. This perfect draft also does away with all

danger of the escape of gas from the flues into the green-house, which often happens when the draft is not active. Formerly the flues used to be run along one side or end of the green-house, emptying into a chimney placed there; but this method is rarely satisfactory, as the cold outside air, rushing down the chimney, throws back the heated air, particularly in high winds, so as to nearly destroy the heat; but by the method of constructing the chimney on the top of the arch of the furnace, and returning the flue back into it, no such difficulty can occur.

Heating by Hot-Beds.—The preparation of the heating material for the hot-bed is a matter of importance. It should be manure fresh from the horse-stable, and when they can be procured, it is better to mix it with about an equal bulk of leaves from the woods, or refuse hops. If the weather is very cold, the bulk of manure must be of good size, from five to six wagon loads, thrown into a compact round heap, else the mass may be so chilled that heat will not generate. If a shed is convenient, the manure may be placed there, especially if the quantity is small, to be protected from cold until the heat begins to rise. The heap should be turned and well broken up before being used for the hot-beds, so that the rank steam may escape, and the manure become of the proper "sweetened" condition. It is economy of the heating material to use a pit for the hot-bed. This should be made from two to three feet deep, six feet wide, and of any required length. After the heating material has been packed in the pit to the depth of twenty to twenty-four inches, according to the purpose for which it is wanted, or

the season of the year, (the earlier in the season, the deeper it is needed,) the sashes should be placed on the frame, and kept close until the heat generates in the hot-bed, which will usually take twenty-four hours. Now plunge a thermometer into the manure, and if all is right it will indicate 100 degrees or more; but this is yet too hot as bottom heat for the growth of seeds or plants, and a few days of delay must be allowed until the thermometer indicates a falling of eight or ten degrees, when the soil may be placed upon the manure, and the seeds sown or plants set out in the hot-bed. Amateurs are apt to be impatient in the matter of hot-beds, and often lose their first crop by sowing or planting before the first violent heat has subsided. Another very common mistake is in beginning too early in the season. In the latitude of New York nothing is gained by beginning before the first week in March, and the result will be very nearly as good if not begun until a month later. There are two or three important matters to bear in mind in the use of hot-beds. It is indispensable for safety to cover the glass at night with shutters or mats until all danger of frost is over; for it must be remembered that the contents of a hot-bed are always tender, from being forced so rapidly by the heat below, and that the slightest frost will kill them. Again, there is danger of overheating in the daytime by a neglect to ventilate when the sun is shining. As a general rule, it will be safe in all the average days of March, April, and May, to have the sash of the hot-bed tilted up from an inch to three inches at the back from 9 A.M. to 4 P.M. Much will, of course, depend upon the activity of the heating material in the

hot-bed, the warmth of the weather, and the character of the plants in the bed, so that we can only give a loose general rule. Numbers of inexperienced amateur cultivators often lose the entire contents of the hot-bed by having omitted to ventilate their hot-bed, and on their return home from business at night find all the contents scorched up. Or the danger of the other extreme is, that the plants are frozen through neglect to cover them at night. A hot-bed requires a certain amount of attention, which must be given at the right time, or no satisfactory results can be expected.

Heating by Hot Water.—This is now the method in use in nearly all well-appointed green-house structures. But little detail need be given, as this branch of heating is done almost exclusively by firms who make a special business of it, and who generally understand the construction and requirements necessary in heating, better than those who employ them usually do; but there are some points which it is perhaps as well to state. In any section of the country where the thermometer falls below zero, if a green-house ten feet high, twenty feet wide, and 100 long, is to be heated by hot water, and a temperature of sixty degrees is required, there should be not less than eight "runs" of four-inch pipes running the length of the house; if fifty degrees are required, six "runs" of pipe; if forty degrees, four "runs" of pipe. The styles of boilers in use are so varied that we forbear to give any one in particular a preference here. For small green-houses, or such as are attached to dwellings, a simple contrivance known as the Base-burning Water Heater is very convenient. The boiler takes up no more room than an

ordinary stove, and the fire requires no more skill or attention than any ordinary base-burning stove, being fed by coal from the top. It can be left with safety ten or twelve hours without any attention. At present prices, a Base-burning Water Heater, with pipes sufficient to heat a green-house 10×50 feet, will cost about $200, or twice that size about $350.

Heating by Steam.—Few green-houses are as yet heated by steam, though the cost of construction is much less, and it is also claimed that there is greater economy in fuel; but though we have had green-houses heated for the past forty years, both in Europe and America, by hot water, steam heating for glass structures has made little progress. It has been successfully done, however, both in Pittsburg, Pennsylvania, and in Chicago, Illinois, and experiments with it on a large scale are now being tried in several parts of the country. We have but little doubt that in erecting green-houses on an extensive scale at one time it is economy to use steam heating; but nearly all such structures are progressive, a few being added each year, and the heating by the ordinary hot-water pipes is as yet believed by the uninitiated to be the safer mode. It must be some such reason as this, whether right or wrong, that has so long caused green-houses to be heated by hot water in this age of steam.

The following is from E. H. Bochman, Pittsburg, Penn., who has been eminently successful with Steam Heating for green-houses. He is strong in the belief that it will eventually supersede all other methods:

"*The New System of Heating Green-houses by Low-pressure Steam*, by which are gained important advantages in every

essential requisite in a heating apparatus, viz., *efficiency, economy* of fuel and attention, *safety,* and *simplicity,* consists of a series of steam tubes of *not less than two inches diameter,* placed under the benches or suspended along the walls, as may be best suited, in such a manner as to drain themselves into a water and steam-tight vessel, which, therefore, has to be situated at the lowest convenient point. These tubes or pipes should present a radiating surface of about one square foot to ten square feet of glass surface; or, better expressed, one square foot to seventy cubic feet of space to be heated to at least fifty-five degrees in any weather up, or rather down to twenty-five degrees below zero, and at a pressure of steam *not to exceed fifteen pounds* to the square inch. If a higher temperature is desired, say from sixty-five to seventy degrees, make the radiating surface equal say one square foot to fifty cubic feet for the same pressure of steam. The *form* of *boiler* is *immaterial;* whichever is best suited and most economical for the particular fuel you use, is the one to adopt, and its capacity should *not be less* than one-horse power to 120 square feet of radiating surface, which, represented in two-inch pipe, is, in round numbers, 240 lineal feet. This boiler should be provided with an *automatic* and *positive-acting steam trap,* to return the condensation which gathers in the vessel above-mentioned to the boiler, *thereby maintaining at all times sufficient water;* in fact, establishing complete circulation, much the same as by hot water; and when you add to this an efficient *automatic damper-regulator,* (do not let yourself be humbugged into any diaphragm nuisance,) you have '*The coming heating apparatus,*' compared to

which any other hitherto in use, of whatever form, is a cumbersome, wasteful, and inefficient affair. Five seasons' use speaks volumes for its superiority, and it has already the entire endorsement of some of the most successful and progressive commercial florists of the country."

Hederaceæ.—Another name for *Araliaceæ,* which see.

Heliotropiaceæ.—A group of corollifloral Dicotyledons, considered by most botanical writers as a sub-order of *Ehretiaceæ,* which see.

Helmet.—The hooded upper part of some flowers, as in the Monkshood; the same as Galea, which see.

Hemerocallideæ.—The *Hemerocallis* family, a sub-division of the natural order *Liliaceæ. Hemerocallis, Funkia, Agapanthus,* and *Tritonia* are examples. See *Liliaceæ.*

Hemi.—In Greek compounds means *half* or *halved.*

Hepta. — In Greek compounds means *seven.*

Heptagynia.—Having seven pistils.

Heptandria.—Having seven stamens.

Herb.—A plant that does not possess a woody stem.

Herbaceous.—Merely green, or thin green and cellular, as the tissue of membraneous leaves. Also producing an annual stem from a perennial root.

Hermaphrodite.—Having both stamens and pistils in one bloom, as in most common plants.

Heterocarpus.—Where a plant bears fruit more or less distinguishable into two separate forms.

Heterocephalous.—Bearing in the same individual, heads of entirely male flowers, and others entirely female.

Heterogamous.—Bearing flowers of different sexes.

Hexa.—In Greek compounds means *six.*

Hexagynia.—Having six pistils.

Hexandria.—Having six stamens.

Hill.—This is a term used to designate the place where Tomatoes, Corn, Potatoes, Melons, etc., are planted; and the use of the term often leads the novice to serious errors in planting, as it gives the impression that a hill or mound must be made to sow and plant on, and which is often done to the detriment of the crop, as in our hot and dry climate, if a mound of four or five inches is raised above the general level, the plants suffer often severely in dry weather. If a "hill" is formed at all, it should only be by drawing the soil up to the plant to support it after it has well started to grow; such a mound will then do less harm, as the foliage shades the ground. In planting, then, particularly on light, dry soils, the "hills" for sowing or planting should be made nearly on the level surface.

Hirsute, Hirtus.—Hairy; covered with stiff hairs.

Hispid.—Covered with long, soft hairs.

Hoary.—Covered with white down.

Hoe.—This consists of the "draw" and the "push" or "scuffle" hoe. There are a great many modifications of these. For deep hoeing the steel-pronged draw hoe is the best implement, being much preferable to the blade draw hoe, as it not only pulverizes the soil better, but its points penetrate the soil easier, and the work is thus made much lighter for the operator. The blade draw hoe should never be used, except when the ground is overgrown with weeds, (a condition of things which, if possible, should never be allowed,) or to draw earth up to plants, such as Celery or Cabbages. After the ground is newly planted, before it is allowed to get hard, the "scuffle" or "push hoe" is far more effective than the draw hoe, particularly between rows; nearly twice the amount of work can be done than with the draw hoe, but of course that is simply stirring the surface; for deep cultivation, the steel pronged hoe is the best implement.

Homogeneous.—Having a uniform nature or principle.

Honey-pore.—The pore in flowers which secretes honey.

Hooded.—Flowers formed into a hood at the end, like the Aconites.

Horn.—Any appendage which is shaped somewhat like the horn of an animal; as the spur of the petals in *Linaria.*

Humilis.—Low.

Hyacinthus.—Blue with a violet tinge; blue with a little red.

Hybrids, Hybridæ.—Plants obtained by applying the pollen of one species or variety to the stigma of another; the common offspring of two distinct species.

Hypo.—In Greek compounds means *under.*

I.

Icos.—In Greek compounds means *twenty.*

Icosandria.—Having twenty stamens or more.

Imbricate, Imbricated.—When bodies overlap each other, like the tiles or shingles on a roof.

Immersed.—Growing entirely under water.

IMP

Imperfect.—Where certain parts are not developed. As the stamens in some, and the carpels in other flowers.

Incised, Incisus.—Regularly divided by deep incisions.

Included.—Inclosed in anything; not extending beyond the organs surrounding it.

Incrusted, Incrustate.—Where the outer envelope is firmly attached to the part it covers, as when a pericarp invests the seed so closely that it seems to form a portion of it.

Incurved, Incurvus, Incurvate.—Bending inwards; as where the stamens curve towards the pistil.

Indefinite.—Many, but uncertain in number, like the stamens of some Cacti.

Indigenous.—A plant which is the natural production of any country; not exotic.

Individual.—Whatever is capable of separately existing, and reproducing its kind.

Indusium.—The membraneous covering of the spore-cases of many Ferns.

Inferior.—When one organ is placed below another; thus an inferior calyx grows below the ovary, while an inferior ovary grows, or seems to grow, below a calyx.

Inflated. — Thin, membraneous, slightly transparent, swelling equally, as if inflated with air.

Inflorescence.—The general arrangement or disposition of the flowers in a plant.

Insects.—In the green-house or grapery, or any place where plants are grown under cover, insects, with few exceptions, are under control; but when in the open field or garden, we are often powerless against their ravages, particularly when they attack the roots of plants. We can manage many of them, even outside,

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when they attack branches or leaves; but with others we are as powerless as with those attacking the roots. There is no doubt that the encouragement of birds on farms and in gardens, by feeding and sheltering them, well repays, in the return for the insects they destroy. In nearly all the large cities in this country, since the introduction of the European Sparrow, though in part a seed-eater, there has been a marked absence of the "Measuring Worm," "Rose Slug," and other caterpillar-like insects. The Rose Slug (*Selandria rosea*) is a light green insect; when fully developed it is about an inch in length. There are apparently two kinds, one of which eats only the outer skin of the leaf on the under side, the other eats it entire. The first is by far the most destructive. In a few days after the plants are attacked, they appear as if they had been burned. An excellent application for the *prevention* of the Rose Slug is whale oil soap dissolved in the proportion of one pound to eight gallons of water; this, if steadily applied daily for a week with a syringe on Rose plants, in early spring, before the buds begin to develop, will never fail to prevent the attacks of this insect. If this precaution has been omitted, and the insects are seen on the leaves, white Hellebore powder dusted on the plants will quickly destroy them without injury to the plants. The *Rose Beetle*, (*Aramigus Fulleri*,) or Bug, as it is commonly called, however, is a much more difficult insect to deal with. For information regarding it see page 196. The Rose or Grape Vine Beetle (*Melolontha subspinosa*) is another pest, usually destroying the flowers on the Rose, and both flowers and young fruit on the vine.

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The only certain remedy is to destroy them by hand.

The Green Fly, or *Aphis*, is one of the most common, but most easily destroyed of almost any insect that infests plants, either indoors or out. In our green-houses, we fumigate twice a week, by burning about half a pound of refuse tobacco stems (made damp) to every five hundred square feet of glass surface, but in private green-houses or on plants in rooms, fumigating is often impracticable. But Tobacco in any form is quickly fatal to the Green Fly; so in private green-houses or in rooms, where the fumes of Tobacco would be objectionable, Tobacco stems can be used by steeping one pound in five gallons of water, until the water gets to be the color of strong coffee. This is applied over and under the leaves with a syringe, and destroys the insect quite as well as by fumigating, only in either case the application should be made before the insects are seen, to *prevent* their coming rather than to destroy them when established; for often by neglect they get a foothold in such legions that all remedies become ineffectual to dislodge them, unless by brushing them off the leaves with a light brush. Another means of preventing the Green Fly is to apply Tobacco in the shape of dust or snuff. The sweepings of Tobacco warehouses can be bought in most places at a cost of five to ten cents per pound. This, applied once or twice a week to an ordinary sized private green-house, would effectually prevent any injury from the Green Fly. No special quantity of this need be prescribed, as it is in no way hurtful to the plant; all that is necessary is to see that it is so dusted on that it reaches all parts of the plant, and on

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both sides of the leaves. It is best to slightly moisten the leaves beforehand, so that the dust will adhere to them. When applied to plants out-doors, it should be done in the morning when the dew is on, or after a rain. Fruit trees of many kinds, shrubs, and Roses of all kinds, out of doors, are particularly liable to injury from some species of Aphis, but the application of Tobacco in any of the forms alluded to, if made in time, will be found a cheap and effectual remedy.

Ground or *Blue Aphis* is another species of Aphis that gets its living from the roots down in the soil, which may have the effect of changing its color, while the Green Aphis feeds in the air on the leaves. The Blue Aphis attacks a great many varieties of plants, both flower and vegetable, particularly in hot, dry weather, and whenever Asters, Verbenas, Petunias, Centaureas, Beets, Radishes, Lettuce, etc., begin to droop, it will be found on examination, in three cases out of four, that the farthest extremities of their roots are completely surrounded by the Blue Aphis. The only remedy we have ever found for this pest is a strong decoction of Tobacco stems, made by being boiled until it gets to the color of strong coffee, and poured on, when cold, in quantity enough to reach the extremity of the roots. There is no fear of injuring the plants by this application, as it acts as a fertilizer to some extent.

The Verbena Mite is an insect that can only be seen by the use of a powerful microscope, and its presence is only known by the appearance of the leaves known as "Black Rust," which see.

The Mealy Bug, as it is familiarly

known, from its white, mealy-like appearance, belongs to the same family as the Cochineal insect, (*Coccus Cacti,*) from which the Cochineal dye is obtained. It is one of the most troublesome of all insects to dislodge. The only certain remedy we have ever been able to get to kill Mealy Bug without injury to the leaves, is a mixture known as "Cole's Insect Destroyer," the ingredients of which we do not know, as the inventor so far has been able to keep his secret. This, put on with a barber's atomizer, never fails to destroy them. The great objection to this remedy is its price, which is entirely too high to admit of its being used on a large scale. The common method to get rid of Mealy Bug is to brush it off the leaves with a brush, made soft enough not to scratch the leaves or stems.

Ants.—These are sometimes very destructive to vegetation, particularly in dry, sandy soils. We have repeatedly suffered serious losses from them, both in our green-houses and out of doors. The most efficacious remedy we have tried is to saturate pieces of sponge with sugar, or to place fresh bones around their haunts; they will leave everything else to feed on these, and when they are thus trapped, can be destroyed by dipping in hot water or burning.

Thrips (*Tettigonia*) vary in color, being light green, brown, and black. It is much more active in its movements than the Green Fly, and more difficult to destroy, and when it once gets a foothold is one of the most destructive enemies to the grapery or green-house. Tobacco smoke that will destroy the Aphis, has but little effect on Thrips; but in our experiments in destroying insects in the

winter of 1881 in our green-houses, we found that Tobacco stems boiled, so that the liquid from them was as dark as strong coffee or porter, was certain death to the Thrips. We had a large house of Dracænas and other tropical plants badly affected by Thrips; we syringed the plants freely with the Tobacco water for ten or twelve days with the most satisfactory results, as at the end of that time not an insect was to be seen, and the plants at once began to grow with unwonted vigor.

The Red Spider (*Acarus tellarius*) is another well-known pest to the green-house, and, like the Thrips, seems perfectly indifferent to the fumes of Tobacco. It is one of the most insidious of all our insect enemies, as it works nearly always on the under part of the leaves, and often has got a firm foothold before its presence has been discovered. The experienced gardener knows that the main cause of Red Spider is a dry, hot atmosphere, as it is never present to injure in a moist atmosphere and low temperature. So the preventive is at all times an atmosphere in the green-house that will prevent the attacks of the Red Spider, which at the same time is most congenial to the health of the plants, for it is certain that if the Red Spider is present in force, then the atmosphere has been too dry for the well-being of the plants. To avoid this in private green-houses, where the walks cannot be splashed with water, evaporating pans should be placed on the pipes, or any other method that may suggest itself to increase the moisture of the atmosphere. Last season we filled the space between the rows of pipe with Sphagnum Moss, from which, when wet, a steady moisture

was given out. When the Red Spider is present, the best way to destroy it is repeated forcible syringings of the leaves, with applications of a sulphur wash to the pipes, as recommended for Mildew, which see.

"*Carnation Twitter*" is an insect but little known, and in this district only by its local name of "Carnation Twitter," given from its rapid and nervous motion. As seen by the naked eye, it is about the twentieth part of an inch in length, and of a thickness not more than that of a needle point. It is of various shades of color, from green to black. It is never very numerous on the plants, but most destructive, and evidently poisonous in its attacks on all varieties of the Carnation or Dianthus family. Its effects on plants somewhat resemble those of the Red Spider, except that, when attacked by the "Twitter," the leaves have a cankered and twisted appearance, easily distinguishable from the browning effects of the Spider; and it is far more destructive. We have often seen thousands of Carnation plants destroyed by it in a season. We regret to say that, so far, we have found nothing that will destroy this insect that does not at the same time injure the plant. We have tried Tobacco in all forms, lime, soot, Hellebore, Paris Green, Quassia, Aloes, and all the nostrums usually baneful to insect life, without seeming in the slightest to disturb the "Twitter." We have found, however, that its ravages are worst on light soils; on heavy, stiff clay land we have never known it to do much injury.

Brown and White Scale Insects are often troublesome on old plants of Oleanders, Orange trees, and some hot-house plants.

They are best destroyed by being washed or rubbed off.

The *Angle Worm*, or the common red worm, seen in nearly every soil, in pots or in the open ground, is harmless as far as feeding on the plant goes, for it does not feed on the plants, but bores and crawls around in a way which seriously disturbs the roots of plants, particularly when growing in pots. Some savant has recently given it as his opinion that the Angle Worm is highly beneficial in pulverizing the soil, and that Nature has placed it there for that purpose. We are afraid that there are few cultivators that feel grateful to the Angle Worm for such service, and that most of us would rather be allowed to do our own pulverizing without this "natural" assistance. The Angle Worm is easily destroyed with the following solution: one peck of shell lime in forty gallons of water, allowing the residue to settle at the bottom, and watering the plants with the clear lime water. The caustic of the lime acts on the cuticle of the worms, and is quickly fatal to them.

There are many insects that attack the Cabbage tribe, among the best known of which is that which causes the disease known as "Club Root," (which see.) Another enemy of the Cabbage plant, and one that is sometimes even more destructive than the Club Root, is the *Cabbage Caterpillar* or *Cabbage Worm*. This insect is comparatively a new comer in the vicinity of New York, having been, it is believed, imported from Europe. It is produced by a small white butterfly that is seen hovering over the Cabbage patches in spring. It attacks the leaves of the plant, and is such a voracious feeder that it will quickly destroy a whole

plantation. We find an excellent remedy for this pest to be White Hellebore powder, which must, however, be put on in the early stage of the plant's existence, as when heading up of course it would not be safe to apply it. The past fall and winter our cold frame Cabbage and Cauliflower plants were attacked by the Cabbage Worm, both in the seed bed in the open field, and also after being transplanted into the frames. One good dusting of White Hellebore powder destroyed them completely on both occasions. There are three kinds of insects which attack the roots of Cabbages after being planted out in the field to head. One is a species of Wire Worm, that imbeds itself in the stem; another, a white maggot-like grub, that eats the bark of the root a few inches below the surface of the ground; another still, of a dull gray color, resembling a caterpillar somewhat in shape, that cuts the root clean off. We regret to say that for none of these dangerous insects can we suggest anything that will kill them without at the same time killing the plant. The only consolation we can give cultivators is, that by some kind provision of nature it is rare that they follow up their attacks in successive years; and in many sections they disappear for many years. In long cultivated grounds, that are continually being turned up by the plow and cultivator, they now do but little harm, as the continued stirring of the ground no doubt disturbs them so as to prevent their increase.

The *Phylloxera*, which has been so destructive to the Grape vine in Europe, is, fortunately, mostly localized with us thus far, and its ravages have been far from alarming, though many feel apprehensive of the future. Its depredations, which are of a deadly nature, are confined chiefly to the roots, and thus far no certain means for its destruction have been discovered. The Phylloxera has, in a few places, been found quite destructive to the foreign vine grown under glass, especially in parts of Rhode Island, making it necessary, in some cases, to renew both the vines and the borders.

Colorado Bug, or *Potato Beetle*, so destructive some years ago, has now been well-nigh driven off by the persistent use of Paris Green by farmers and gardeners.

Insertion.—The manner in which one part is inserted into, or adheres to, or originates from another; as the leaf on the branch, the branch on the stem, etc.

Integument.—A portion closely investing or merely surrounding another.

Internode.—The space between two nodes.

Interstices.—Spaces between one thing and another.

Inverted.—Having the apex in an opposite direction to that of some other thing, as many seeds.

Involucre, Involucrum.—A ring or rings of bracts surrounding several flowers, such as the whorled bracts at the base of an umbel, a head, or a single flower.

Involute, Involutive.—Rolled inward; when edges are rolled inward on each side.

Iridaceæ, (*Ensatæ, Irids.*)—A natural order of Monocotyledons belonging to Lindley's Narcissal Alliance of Endogens. They are herbs with corms, rhizomes, or fibrous roots, and mostly with equitant leaves, and flowers in sheaths. They are found in warm and temperate regions, and abound at the Cape of Good Hope. There are about fifty genera and upward of five hundred species. *Iris, Gladiolus, Crocus*, and *Ixia* are examples.

J.

JAS

Jasminaceæ, (*Jasmineæ, Bolivarieæ, Jasminworts.*)—A natural order of corollifloral Dicotyledons belonging to Lindley's Echial Alliance of perigynous Exogens. They are shrubs, often twining, with opposite or alternate, usually compound leaves. They are found chiefly in the tropical parts of India. There are six known genera and above a hundred species. *Jasminum* and *Nyctanthes* are examples of the order.

Joints.—Certain parts where the uniformity of the tissue is altered, and where it may readily be ruptured or fall asunder in decay.

LAT

Juglandaceæ, (*Juglands.*)—A natural order of monochlamydeous plants belonging to Lindley's Quernal Alliance of diclinous Exogens. They are trees with alternate pinnate stipulate leaves and unisexual flowers. They are chiefly natives of North America and the Indies. *Juglans regia* is the English Walnut or Madeira Nut of the fruit stores. *Carya alba* is the American Hickory Nut. *Juglans nigra* is the Black Walnut. They are valuable timber trees. There are few known genera and about thirty species. *Juglans* and *Carya* are examples of the order.

K.

Keel.—When the midrib of a leaf or petal is sharp and elevated externally it is called a keel.

Keeled.—Formed in the manner of the keel of a boat; that is to say, with a sharp projecting ridge, arising from a flat or a concave central plate, as the glumes of grasses.

Knot.—A swelling in some stems where the attachment of the leaves takes place.

L.

Labellum.—Lip; or rather the lower lip only. The third petal of an Orchid, usually turned toward the lower front of the flower, and very different from the remainder; also a similar petal in other flowers.

Labiate.—Having lips; a term applied to that form of a monopetalous calyx or corolla which is separated into two unequal divisions, the one anterior and the other posterior, with respect to the axis.

Laciniate.—Cut or divided into segments; fringed.

Lactescent.—Containing or yielding a milky juice.

Lana, Lanugo, (adj. *Lanate, Lanuginose.*)—Long, dense, curled, and matted hairs, resembling wool.

Lanceolate.—Shaped like the head of a spear; narrow and tapering at each end.

Lanuginosus.—Downy; cottony. See *Lana.*

Latent.—Lying dormant till excited by

some particular stimulus; as the adventitious buds occasionally developed in trees.

Lateral.—Proceeding from, or fixed on, or near the side of a stem or other organ.

Lauraceæ, (*Laurineæ, Lauri, Laurels.*)—A natural order of Dicotyledons belonging to Lindley's Daphnal Alliance of perigynous Exogens. They are trees, with exstipulate, usually alternate, dotted leaves. They are tropical, aromatic, and fragrant plants. *Cinnamomum Zeylanicum* yields Cinnamon Bark. *C. cassia* supplies Cassia Bark. *Camphora officinarum*, a native of China, Japan, and Cochin China, yields Camphor. *Persea gratissima* furnishes the fruit called Avocado Pear or Alligator Pear. *Sassafras officinale* is the American Sassafras Tree. *Laurus nobilis* is the Sweet Bay. There are about fifty genera and between four and five hundred species. *Laurus, Cinnamomum, Camphora*, and *Sassafras* are examples of the order.

Laurenciaceæ.—A natural order of rose-spored *Algæ*. See *Algæ*.

Lawn.—Is the name given to the open grass space surrounding a dwelling. The preparation of the lawn should be preliminary to the laying out of flower-beds in grounds having pretensions to what is called Landscape Gardening. The formation of the lawn is too often hastily and imperfectly done; it is the foundation of all subsequent operations, and if badly done at first, the fault can never be remedied afterward. The first thing to be done is to get the ground shaped to the desired grade, taking care in grading, that when hills or rocks are removed, sufficient subsoil is also removed to be replaced with top soil; so that at least five inches of good soil will overlay

the whole in all places. When the grading is finished, if the nature of the ground requires it, (see *Draining*,) drains should be laid wherever necessary; then the whole should be thoroughly plowed, a sub-soil following in the wake of the common plow, until it is completely pulverized. A heavy harrow should then be applied until the surface is thoroughly fined down; all stones, roots, etc., should be removed, so that a smooth surface may be obtained. The lawn is now ready to be sown. When the seed is sown, a light harrow should again be applied, and after that a thorough rolling given, so that the surface is made as smooth and firm as possible. In the latitude of New York, the seed may be sown any time during the months of April and May, and will form a good lawn by August, if the preparation has been good. If sown in the hot months of June or July, a sprinkling of oats should be sown at the same time, so that the shade given by the oats will protect the young grass from the sun. Lawns are also sometimes sown during the early fall months (September being the best) with excellent results. The formula for seed for lawn grass now known in New York as Central Park Mixture, is as follows: Eight quarts Rhode Island Bent Grass; three quarts Creeping Bent Grass; ten quarts Red Top Grass; ten quarts Kentucky Blue Grass; one quart White Clover. For small plots, of course, digging, trenching, and raking must be done, instead of plowing, sub-soiling, and harrowing. In sloping banks it is often necessary to use sod, as the rains wash the soil off before the grass seed has time to germinate. It is sometimes even necessary, in sodding very steep banks, to use

pins eight or ten inches in length, to pin the sods in place, to prevent them from being washed down by excessive rains before the grass roots have had time to fasten in the soil.

Lax, Laxus.—Loose; said of parts which are distant from each other, with an open arrangement, such as the panicle among the kinds of inflorescence.

Leaf.—An appendage to the stem, considered as an expansion of the bark, composed of cellular tissue, and generally with fibers of vascular tissue intermixed.

Leaflets.—The subdivisions of compound leaves.

Leathery.—With a consistency more or less resembling the toughness of leather; the same as coriaceous.

Legume.—A name given to the seed-vessel of the Pea family, opening in two valves, and having the seeds attached to the ventral suture.

Leguminosæ, (*Fabaceæ, Leguminous* plants.)—A natural order of Dicotyledons belonging to Lindley's Rosal Alliance of perigynous Exogens. They are herbs, shrubs, or trees, with alternate, usually compound exstipulate leaves. The plants occur in all parts of the world, but are abundant in tropical countries. The order is a large one, and has been divided into three sub-orders, viz.: *Papilionaceæ, Cæsalpinieæ*, and *Mimoseæ*. They supply food, timber, fiber, gums, dyes, and various economical substances. Some are poisonous. Among the useful plants may be mentioned Beans, Peas, Lentils, Pulse of various kinds, Lupins, Clover, Lucerne, Sainfoin, Tragacanth, Indigo, and others. There are about 550 genera and 7,000 species. *Phaseolus, Vicia, Pisum, Lotus, Cassia*, and *Acacia* are examples of the order.

Lenticular, Lentiform.—Shaped like a lens; resembling a double convex lens.

Leprous.—Covered with spots or scales.

Leucanthus.—Bearing white flowers.

Leuco.—In Greek compounds means *white.*

Liber.—The inner lining of the bark of Exogens, where alone its woody matter resides.

Ligneous, Lignose.—Having the texture of wood; of or belonging to wood.

Lignum.—The wood; that central part of a stem which lies beneath the bark, or its equivalent, the cortical integument.

Ligula.—A membrane at the base of the blade of the leaf of Grasses.

Ligulate.—Strap-shaped; narrow, moderately long, with the two margins parallel.

Lilac.—Pale, dull violet; blue and red, with a little gray.

Liliaceæ, (*Hemerocallideæ, Tulipaceæ, Coronariæ, Asphodeleæ, Asparagineæ, Convallariaceæ, Lilyworts*, etc.)—A natural order of monocotyledonous plants belonging to the sub-class *Petaloideæ*, and constituting the type of Lindley's Lilial Alliance of Endogens. They are herbs, shrubs, or trees, with bulbs, corms, rhizomes, or fibrous roots, simple sheathing or clasping leaves, and regular flowers. They are natives of both temperate and tropical regions, and possess medicinal qualities. Onions, Leeks, Garlic, Chives, Shallot, Rocambole, Tulips, Hyacinths, Lilies, etc., are all furnished by plants belonging to this extensive order. There are upward of 150 genera and 1,200 species. *Lilium, Tulipa, Hyacinthus, Yucca, Agapanthus, Asphodelus*, and *Dracæna* are examples of the order.

Limb.—The flattened, expanded part of a leaf or a petal.

Limbate.—Having one color surrounded by an edging of another.

LIN

Linear.—Narrow, short, with parallel margins, as the leaf of the Yew.

Lineate, Lineolatus.—Lined; marked with fine parallel lines.

Lipped.—Having a distinct lip or labellum, like the Snapdragon.

Livid.—Of a pale lead color.

Lobe.—A rounded projection or division of a leaf or other organ.

Lobed.—Divided into lobes.

Loculaments.—Partitions or cells of a seed-vessel.

Lorate.—Shaped like a strap. The same as ligulate.

Low.—When a plant is of smaller dimensions than other species with which it is allied.

MEL

Lucid.—Bright, shining.

Lunate, Lunulate.—Shaped like a half moon; crescent-shaped.

Lurid.—Of a dingy brown; gray with orange.

Luxuriant, Luxuria.—A rank or unnaturally exuberant growth. A *luxuriant flower* is one which multiplies the covers of the fructification so as to destroy the essential parts.

Lymph.—Sap; the crude, unelaborated fluid of vegetation. *Lymphæducts* are sap-vessels.

Lyrate, Lyre-shaped.—A lyrate leaf is pinnatifid, with the upper lobes much larger than the lower, and ending in one still larger.

M.

Macula, (adj. *Maculate, Maculose.*)—A broad, irregular spot or blotch.

Male System.—All that part of a flower which belongs to the stamens.

Manicate.—Covered with hairs.

Many-headed.—When many distinct buds are seated on the crown of a root.

Marcescent, Marcid.—Not falling off till the part which bears it is perfected, but withering long before that time, as the flowers of *Orobanche.*

Marker.—This is a simple implement used mostly by market gardeners to line out drills. It is often home made by taking a piece of joist 3×4 inches, and about six feet in length, and to each side nailing pointed slats eight or nine inches long, at a width apart usually, on one side of fourteen inches, and the other of nine inches. Two handles four or five feet in length are fastened to it, by which it is dragged, the teeth marking the rows. If wanted deep, a weight is placed on the joist. In operating it, a line is stretched across the bed to be sown or planted, the first teeth being guided by the line; it is steadily dragged along the bed, making from four to six lines at once, in a much more uniform manner than can be done with the hoe.

Maturation.—The process of ripening; also the time when fruits are ripe.

Mealy.—Covered with a scurfy powder.

Mealy Bug.—See *Insects.*

Medulla, (adj. *Medullary.*)—The pith of a plant; that central column of cellular matter over which the wood is formed in Exogens.

Melanospermeæ.—One of the three great divisions of *Algæ.*

Melliferous.—Honey-bearing.

Membrane.—A delicate pellicle of homogeneous tissue. Also, a very thin layer of cellular tissue.

Meshes.—The openings in any tissue.

Midrib.—The large vein extending along the middle of a leaf, from its petiole nearly or quite to the other end.

Mildew.—The term used for the parasitical fungus so common to vegetation, both under glass and in the open air. Like nearly all other parasites hurtful to plants, it seems to us that Mildew only attacks plants when, from some cause or other, they are in an abnormal state. For instance, we find that if some varieties of Roses and Grape Vines, either under glass or in the open air, are exposed to excessive drought, so as to enfeeble the leaf action, or if exposed to a sudden change of temperature, they are almost certain to be attacked with Mildew. Many years ago, in our green-houses at Jersey City, N. J., we had a marked instance well illustrating this belief. We had a Rose house, on which the sashes had been slid down for ventilation; it came up suddenly cold, and before the green-house could be closed, some six or eight square spaces of 3x3 feet, where the sashes had been let down, were frozen so severely that the young shoots of the Roses hung down, and we thought they were ruined. The next morning, however, they appeared all right; but in a few days after Mildew appeared in the square space (3x3 feet) with the lines nearly as closely defined as if struck out with a rule, the other portions of the Rose house being entirely free from it. Now we reason from this incident, and others nearly as marked, that spores or germs of mildew are nearly always present, floating in the atmosphere, and that when a congenial soil, so to speak, is formed by a relaxed condition of the plant, the floating germ is sown on the enfeebled leaves, and the parasite starts into the low organic life known as Mildew. Fortunately, we have a rarely-failing antidote against Mildew. Sulphur, applied in various forms, is almost a certain specific. For Grape Vines, Roses, or other plants affected by Mildew outdoors, the flowers of sulphur applied by the sulphur bellows, when used in the early stage of the attack, will at once check it; but when Mildew attacks Roses or Grape Vines under glass in winter, the best plan is to paint the hot water pipes with a wash of sulphur and lime or sulphur and Guano (the Guano or lime is only used to make the sulphur stick to the pipes) every eight or ten days. The fumes of the sulphur, evolved by the heated water in the pipes, (about 200 degrees,) is certain destruction to the germ producing Mildew. We find it also valuable, when so applied, in preventing the "fungus of the cutting bench," often so annoying to the propagator. When flues are used instead of hot-water pipes, the sulphur wash may be used on them; but care must be taken that it is only on the end of the flues farthest from the furnace, as, if much hotter than 200 degrees, it will injure the leaves; but no harm can ever ensue from its use on the hot-water pipes or on the smoke flue, if not hotter than 200 degrees. At seasons when no fires are used, the following preparation will usually be found a prompt remedy against Mildew: take six pounds each of flowers of sulphur and lump lime, put together and slake the lime, adding ten gallons of water. Boil all together until it is reduced to four gallons; allow the liquid

to settle until it gets clear, and then bottle for use. One gill only of this is to be mixed with five gallons of water, and syringed freely over the plants, care being taken not to let it drop on expanded flowers or ripe fruit, as its odor is very disagreeable.

Miniatus.—Of a vermilion color; pure red with a little yellow.

Mitriform.—Formed like a miter.

Mollis.—Soft.

Mon.—In Greek compounds means *one;* as *monanthes,* one-flowered.

Monadelphous.—Having all the stamens united by their filaments into a tube.

Monandrous.—Having only one stamen.

Monanthus.—Either where each peduncle bears a single flower, or where the plant produces only one flower.

Moniliform.—Formed like a necklace; that is to say, with alternate swellings resembling beads.

Monocarpous.—Producing fruit but once in its life, as an annual.

Monochlamydeous.—Having but one floral envelope.

Monocotyledons, (*Endogenæ, Endogens, Amphibrya.*)—One of the primary classes in the natural system, consisting of plants having only one cotyledon. The subclasses are, *Dictyogenæ, Petaloideæ* or *Floridæ,* and *Glumiferæ* or *Glumaceæ.*

Monœcious.—Having male and female organs in different flowers on the same plant.

Monogamic.—Having flowers distinct from each other, and not collected in a head.

Monogynous.—Having but one style, even though many carpels be present.

Monopetalous.—Having one petal; having all the petals united by their edges.

Monosepalous.—Having one sepal; having all the sepals united by their edges.

Morphology.—That department of botany which treats of the forms and modifications of the organs of plants.

Moschatus.—Possessing the odor of musk.

Mucous, Mucose.—Covered with a slimy secretion, or with a coat that is readily soluble in water, and becomes slimy; resembling mucus.

Mucronate.—Abruptly terminated by a hard, sharp point; thus, *mucronato-serrate* is when the serratures terminate in a hard, sharp point.

Mulching.—Placing leaves or rough litter around newly planted trees to prevent evaporation from the soil has been long practiced. Good cultivators apply leaves, rough manure, etc., to the surface of the soil to protect the roots of certain plants against the action of frost, it being useful, not so much against freezing as to prevent alternate freezing and thawing. In Strawberry culture, the mulch applied in the fall protects the roots during winter; it is allowed to remain on the bed, where, if thick enough, it keeps down weeds, and prevents the evaporation of moisture from the soil during the dry time we are apt to have between the flowering and the ripening of the Strawberry. The utility of a mulch is not confined to the Strawberry among fruits; Raspberries and Currants are much benefited by it; and the finer varieties of English Gooseberries, a fruit with which very few succeed in our hot summers, can be successfully grown when so treated. Newly planted trees, whether of fruit or ornamental kinds, are much benefited by a mulch, and its application often settles the question of success or failure. We have known a whole Pear orchard to be mulched, and the owner thought its cost was more than repaid by saving the fall-

en fruit from bruises. Spinach is protected in the same way, and Carnations, Pansies, Roses, and other partly hardy plants, are mulched in the same manner. The rooting of a layer is by some gardeners thought to be facilitated by placing a flat stone over the buried branch; the fact being that the stone acts as a mulch, and prevents the soil around the cut portion from drying out, and greatly favors the rooting process. Even in the vegetable garden mulching is found useful, especially with Cauliflowers, which find our summers quite too dry. The material of the mulch is not of much importance; mostly one kind of litter will answer nearly as well as another. The material will be governed in great measure by locality; those living near salt water will find salt hay, as hay from the marshes is called, the most readily procured; those who live near Pine forests use the fallen leaves, or Pine needles, as they are called; in the grain-growing districts straw is abundant, and nothing can be better; it can be applied more thoroughly if run through a cutter. Leaves are Nature's own mulch, and answer admirably; if there is danger of

their being blown away, brush laid over them, or even a little earth sprinkled on them, will keep them in place. One of the best materials to use for summer mulching is the green grass mowed from lawns. This, applied to the thickness of two or three inches around the roots of all kinds of small fruits, will be found not only to greatly benefit the crop, particularly in dry weather, but will save greatly in labor by preventing the growth of weeds. Stable manure, particularly that of cows, is extensively used in Rose growing in winter, two or three inches of which is placed over the soil when growing in pots or benches; Moss mulching is also used for this and other purposes. See page 208.

Multifid.—Divided half-way into many parts or segments.

Multiplex.—Where many of the same parts or organs occur together.

Muricated.—Covered with sharp points, as in *Panicum muricatum.*

Musci.—An important tribe of Cryptogams, comprising the true Mosses.

Mycelium.—A word equivalent to spawn.

Myurus.—Long and tapering, like a mouse's tail.

N.

Naked.—Where a surface is destitute of pubescence.

Naked Seeds.—Seeds having no pericarpel covering, as in Conifers and Cycads.

Nanus.—Dwarf.

Napiform.—Turnip-shaped.

Nebulous, Nebulose.—Clouded.

Neck.—The upper tapering end of bulbs is called the neck, as in Crinum, Amaryllis, etc.

Nectarium, Nectary.—An organ which secretes honey.

Nervation.—The manner in which veins are arranged.

Nerves, Nervures.—The ribs or principal veins of a leaf.

NIG

Niger.—Black, or black a little tinged with gray.

Nigricans.—Blackish.

Niveus.—Snow-white; the purest white.

Nocturnal.—Lasting through a night.

Nodding.—Having the top bent downward; drooping.

Node.—That part or point in a stem from which a leaf, whether complete or incomplete, arises.

Nodose, Nodulose.—Knotted; having many nodes or knots.

Nodules.—Small hard knots.

Normal.—When the ordinary structure peculiar to the family or genus of a plant is in nowise departed from.

ORC

Nucamentaceous.—Having the hardness of a nut.

Nucleus.—The kernel. The term has a variety of applications.

Nudicaulis.—When a stem has no leaves.

Nut.—A hard, indehiscent pericarp, usually containing only one seed; the same as Glans and Achene, which see.

Nutans, Nutant.—Nodding; inclined very much from the perpendicular, so that the apex is directed downward, as the flower of the Snowdrop.

Nutrition.—The vital function by which the development of the various parts of the vegetable structure is effected.

Nux.—The same as nut.

O.

Ob.—A prefix signifying inversion. Thus, *obovate* means inversely ovate.

Oblong.—Elliptical or long oval, equally blunt or round at each end.

Obscure.—Of a dark, dingy color.

Obtuse.—Blunt or rounded.

Occidental.—Coming from or relating to the west, as *Platinus Occidentalis.*

Ocellated.—Spotted in a manner somewhat resembling the iris of an eye.

Ochraceous.—Having the color of clay or yellow ochre.

Octandrous.—Having eight stamens.

Octo.—In composition means eight.

Octogynous.—Having eight styles.

Oculus.—An eye; that is, a leaf-bud.

Oculatus.—Marked with concentric spots of different colors or tints.

Officinalis.—Applied to plants which are useful in medicine or the arts.

Oleaginous.—Fleshy in substance, but filled with oil. Also, like oil.

Oleus.—Strong smelling, whether agreeable or nauseous.

Oleraceous.—Esculent, eatable.

Opaque.—When the surface is dull, or not at all shining.

Opercular.—Covered with a lid.

Operculum.—The lid of anything, as in the pitcher of *Nepenthes.*

Orbicular.—Nearly round and flat.

Orchard Baler.—This name is given to an invention that promises to be of great value to the fruit-growing interest of the United States. It is a machine by which the branches of fruit or other trees are tied in a pyramidal form, and in this shape thatched with straw or hay, as a protection in winter against the severe frosts which cause so much injury to the buds of Peaches and other fruit trees. Thus thatched and excluded from the sun, the flower buds of fruit trees will be held back from opening for nearly a week,

which will often be sufficient to save them from late spring frosts. It is claimed that Peach Trees so protected never fail to produce annually a crop of fruit. A pair of these machines cost from $25 to $50; and it is claimed that two men can bale and thatch fifty trees per day. The time for the operation is after the leaves have fallen in autumn, or any time except when the limbs are frozen. Of course, it is equally applicable to ornamental trees, and for such trees as the *Magnolia grandiflora*, which is rarely seen in good condition south of Richmond, it would be particularly valuable.

Organ.—A general name for any defined subordinate part of the vegetable structure, external or internal; as cell, fiber, leaf, root, etc.

Orifice.—An opening.

Osseous.—Bony, hard, brittle, and very close in texture, as the stone of a Peach.

Ovary.—That part of the pistil which contains the ovules or seeds.

Ovate.—Egg-shaped.

Ovule.—The young seeds of plants contained in the ovarium.

Oxycanthus.—Furnished with many sharp thorns or prickles.

Oxycarpus.—Where the fruit is sharp-pointed.

P.

Palate.—The prominent parts of the base of the lower lip which closes the mouth of a ringent flower.

Palea.—The leaf-like parts of the flower of Grasses, inclosing the stamens, pistils, and hypogynous scales.

Palmaceæ.—See *Palms* in the body of this work.

Palmate.—Having five lobes, the midribs of which meet in a common point, so that the whole bears some resemblance to the human hand.

Panduriform.—Having the figure of a fiddle.

Panicle.—A compound raceme.

Papilionaceous.—Having such a corolla as that of the Pea; butterfly-shaped flowers.

Papillose.—Producing small glandular excrescences like nipples.

Pappus.—The calyx of Composites, varying from a ring of membraneous scales to bristles or hairs. It is very frequently of a downy texture, as in Thistles.

Papulose.—Producing small glands like pimples.

Parasite.—A plant which obtains its nourishment directly from the juices of some other plant to which it is attached.

Parenchyma.—Cellular tissue which has a spheroidal, not tubular form; all the parts of plants which consist of cellular tissue only.

Parlor Gardening.—In parlor gardening, or the keeping of plants in private rooms, one of the most essential things, for satisfaction to the owner, is to start with young, healthy plants, rather than old and matured specimens. One of the most common errors in keeping plants in rooms is that of keeping the temperature too high. Very few plants suitable for the parlor grow well in a temperature

above 50 degrees at night. To be sure, there are quite a number of plants grown in private rooms, that require a much higher temperature; but to have satisfactory results, the two divisions should be kept in separate rooms, at the different temperatures, say 50 degrees at night for the so-called green-house plants, and 65 degrees at night for the tropical or hot-house. A few of the best green-house plants suited for parlor culture, the average temperature at night being 50 degrees, are as follows: Azalias, Abutilons, Ageratums, Callas, Cinerarias, Carnations, Cyclamen, Camellias, Echeverias, Ferns, (green-house,) Ferns, (climbing,) Feverfews, Fuchsias, Geraniums, (Pelargoniums,) Hoyas, (Wax Plant,) Holland Bulbs of all kinds, Ivies, (Parlor and Hardy,) Lobelias, Passifloras, Roses, etc. A limited list of the best suited tropical or hot-house plants for parlor culture, the temperature at night to average 65 degrees, is as follows: Allamandas, Begonias, Bouvardias, Caladiums, Cissus, Crotons, Coleus, Dracœnas, Ferns, (tropical,) Heliotropes, Hibiscus, Poinsettia, Torenias, Tropæolums, Palms, etc. The instructions for Propagating, Watering, Potting, Killing of Insects, Soil, Mulching, and all other operations given for culture of plants, will be found under these different heads, and will be found equally applicable to the culture of plants in rooms as in green-house or hot-house culture. Saucers in which to place the pots are sometimes a necessity in rooms to save the floors from getting wet; but care must be taken not to allow the water to stand for any length of time in the saucers. Plants in rooms during the winter months, when grown in a temperature of 50 degrees, will not usually re-

quire water more than twice a week, and in the temperature of 65 degrees perhaps thrice a week; but in no case water unless the lightness of the color of the soil on the top gives indications that the plant is dry, and then water sufficiently to go through the pots; those that seem less dry water more sparingly, and those that are wet give none whatever until they become dry, no matter how long the time may be. As plants grown in rooms have only one side to the light, it will conduce to the health and symmetry of the plant to turn it around at least once a week, so that each side will have a like proportion of light.

Parvus.—Small; applied relatively, where some object is small by comparison with similar objects.

Patens, Patent.—Spreading wide open, as petals from the calyx. *Patentissimus* is spreading open so much as to fall back.

Patulus.—Slightly spreading.

Pedate.—A modification of the palmate leaf, when its lower lobes are again divided and directed downwards, as in *Saxifraga pedatifida.*

Pedicel, Pedicule, (adj. *Pedicillate, Pediculate.*)—A peduncle of a second or higher order, as in the raceme, where the principal flower stalk is the peduncle, and the lateral secondary ones are pedicils. *Pediculus antheræ* is the filament of the stamen.

Peduncle.—The common stalk of flowers.

Peltate.—Attached by the middle, as the leaf of *Tropæolum.*

Penciled.—Marked in lines, as if with a pencil.

Pentagynous.—Having five styles.

Pentandrous.—Having five stamens.

Perennial, Perennans, Perennis.—Lasting many years, yet flowering every year.

PER

Perfect.—Complete in all its parts; where every part of a flower is developed, and none abortive.

Perfoliate.—When the two basal lobes of an amplexicaul leaf are united together, the leaf completely surrounding the stem, so that the stem seems to pass through the leaf, as in *Eupatorium perfoliatum*, (Boneset.)

Perianth.—The calyx and corolla combined; that is to say, when they look so much alike that they cannot be readily distinguished, as in a Hyacinth.

Pericarp.—The shell or rind of all fruits taken as a whole. When it separates into layers, each layer may have a different name, but the whole is still the pericarp.

Perigynous.—Growing upon some part which surrounds the ovary, usually the calyx, though sometimes the corolla is also included within the meaning.

Persistent.—Not falling off, but remaining green until the part which bears it is wholly matured, as the leaves of evergreens, etc.

Personate.—A term applied to a monopetalous corolla, the limb of which is unequally divided, as in the Antirrhinum.

Petals.—The divisions of the corolla or flower when they are not united to each other by their edges.

Petiole, (adj. *Petiolate.*)—The stalk of a leaf.

Phœnogamous.—Having manifest flowers.

Piceus.—Black with a brownish tinge.

Pictus.—Painted.

Pileate, Pileiform.—Having the form of a cap or lid, like the cap of a Mushroom.

Pinnate.—When simple leaflets are arranged on each side of a common petiole; a compound leaf.

Pinnatifid.—A leaf deeply cut into segments nearly to the midrib.

PLA

Pinnules, Pinnulæ.—The secondary divisions of a pinnate leaf.

Pistil.—The female part of a flower, consisting of ovary, style, stigma, and ovules.

Pitcher.—A hollowed-out leaf, so called, as in *Nepenthes, Sarracenia,* etc.

Pith.—The same as medulla, which see.

Pitted.—Having numerous small, shallow depressions or excavations.

Placenta.—The place or part on which ovules originate.

Plane.—Where the surface is flat or level.

Planting.—This is an operation performed by the fingers, dibber, trowel, or by the spade. The condition of soil for planting should be similar to that for *Sowing,* (which see.) And here, too, as in sowing, the same necessity for moderately firming the soil to the roots is as important as in firming the soil over seeds, and, as advised in seed sowing, no better method can be used in firming the soil after planting than by the feet. In the driest weather in July hundreds of acres of Celery, Cabbage, etc., are planted by our market gardeners on newly plowed ground, without using a particle of water, by the system of firming the plants with the foot after planting. The planter sets the plants with the dibber, and on finishing the row, returns on it, pressing the soil to each plant firmly with the side of his foot. This prevents the dry air penetrating the loose soil, and plants so set will strike out new roots in thirty or forty hours, after which they are safe. The same rule should be adopted in setting out all plants, shrubs, trees, or anything else, particularly if the weather is hot and dry. Countless millions of plants are lost every season by want of the simple operation of firming the roots after planting. In planting out plants that have been grow-

ing in pots, there is perhaps not so much necessity, as the roots are not mutilated, and hence make a quicker start; still circumstances must be the guide in the operation; and if the soil is very dry and the weather warm, a moderate amount of pressure around the ball of earth will be necessary. Sometimes, in planting out plants from pots, the ball is so hard as to prevent the inner roots getting easily to the surface; in such cases the ball should be crushed or beaten, so as to render it partially loose, which greatly conduces to the growth of the plant.

Plenus, Pleno.—Double, as in double flowers.

Plicate, Plicative. — Plaited or folded together lengthwise, like a closed fan.

Plowing.—Many gardeners yet ignore the plow in the garden, even where it is perfectly practicable to use it. We have used the plow and harrow for pulverizing on every foot that it was possible to use them in, in all our operations in the ground, whether for fruit, flowers, or vegetables, for the past thirty years, and feel convinced that their use for that purpose is far better than the spade or digging fork, besides the immense saving in labor.

Plumose.—Feathery, resembling feathers.

Plumule.—The bud of a seed; the youngest bud in a plant; the bud or growing point of the embryo.

Pod.—The capsule or seed-case of leguminous and cruciferous plants, those of the former (Pease, Beans, etc.) being called legumes, and those of the latter (Cabbage, Turnip, etc.) siliques and silicules, which see.

Pollen. — The powdery or other matter usually contained in the cells of an anther, by whose action on the stigma the fertilization of the ovules is accomplished.

Polyadelphous. — Having many parcels of stamens.

Polyandrous.—A flower having more than twenty stamens inserted in the receptacle.

Polyanthemus.—Bearing many flowers.

Polycotyledonous.—Having more than two cotyledons.

Polygamous.—Having on the same plant some flowers that are male, others that are female, and others hermaphrodite or perfect.

Polygynous.—Having many styles.

Polymorphous.—Where a part or an entire species are subject to considerable diversity of form; assuming various forms.

Polypetalous.—Having many separate or distinct petals.

Polypodiaceæ.—See *Filices.*

Polysephalous.—Having many separate sepals.

Pome.—An inferior fleshy, many-celled fruit, like that of the Apple.

Pores.—Small, often roundish holes or apertures.

Potting.—The first operation of potting is when the rooted cutting is transferred from the cutting bed, or the seedling from the seed box to the pot.

Almost without exception, cuttings or seedlings should be placed in pots not exceeding two and a half inches in diameter. We, in our own practice, invariably use pots two and a quarter inches in diameter at the top and of the same depth. Rooted cuttings do much better in this smaller size, for the reason that the small amount of soil in the 2¼-inch pot allows the moisture to pass off quickly, and thus prevents the soil from becoming sodden for want of air, which would be the case if the cutting had been potted in a 3 or 4-inch pot, as ama-

teur gardeners sometimes do. The potting of cuttings is very simple, and in commercial gardens is performed with great rapidity, average workmen doing 300 plants per hour. One of our workmen has obtained almost national fame in this operation, as he has repeatedly potted 10,000 plants in ten hours, his average being 6,000 per day. The pot is filled to the level with soil, a space made with the finger in the center of the soil of sufficient size to admit the root, which is placed in the opening thus made; the soil is closed in again by pressing with the thumbs close to the neck of the cutting, which firms the soil around the root. But when plants are required to be grown as specimens, or of larger size, they must be repotted at intervals, as the condition of their growth demands. For example, to grow a Geranium of a height of 3 feet and 3 feet in diameter, a pot of at least 8 inches across at top, and 8 inches in depth, would be necessary, but it would not do to move from the 2¼-inch cutting pot to this size at once; three or four different shifts are necessary. These shifts should be made, as a general thing, not greater than from a 2¼-inch size to a 3 inch, and so on.

The time to shift a plant from a smaller to a larger pot is known by the roots beginning to show around the outer surface of the ball. It is not necessary to shift when the first roots touch the side of the pot; let them curl pretty well around the ball, but they must not be allowed to remain long enough to become hard or woody. They must be of that condition which we call "working roots," a condition not very easy to describe, unless to say that the appearance of such roots is white, soft, and succulent. In most cases,

the slightest tap on the edge of the pot is sufficient to turn out the ball of earth. Soil, in depth according to the size of the plant, should be placed in the bottom of the pot, the ball placed in the center, and the soil packed moderately firm in the space, either by the fingers, or by a stick made of suitable size for the purpose. When plants are first potted off, or shifted, they should be stood with the pots touching each other, if the diameter of the plant is less than that of the pot; but, as they begin to develop growth, the plants should be spread an inch or so apart to admit air between the pots; this greatly strengthens the plants, and inclines them to a stocky growth. Though we, in our own practice, use drainage in few kinds of plants except Roses, yet it is perhaps safer to the unpracticed cultivator to use it. See *Drainage.*

Pouch.—A little sack or bag at the base of some sepals and petals.

Powdery.—Covered with a fine bloom or powdery matter, as the bloom on Plums, and the leaves of some plants and the flowers of others.

Præcox.—Early; appearing or flowering earlier than other allied species.

Pratensis.—Belonging to or growing in meadows.

Pricking off.—This is a term used by gardeners for the process of transplanting small seedlings as soon as they are fit to handle, and replanting them closely together, preparatory to being planted in pots or in the open ground. It is distinguished from planting proper, inasmuch as the "pricking off" process is always preparatory to the final planting. For example, when Tomatoes come up thickly in the seed bed, they must be pricked off at a distance of an inch or so apart in a

hot-bed, again to be planted, either wider or in the open air. If this is not done as soon as they are fit to handle, the plants will spindle and get weak, and often will die off altogether from damping.

Primary, Primarius.—The part which is first developed, or the principal division of any organ.

Process, Processus.—Any extension or projection from a surface.

Procumbent.—Lying flat on the ground.

Proliferous.—A plant is said to be proliferous when it forms young plants in abundance about its roots.

Propagation by Seeds.—The most natural way of increasing plants is by seeds; and whenever it is practicable to do so, it is preferable to all others, so that in our own practice, any plant of which we can procure the seed, we rarely increase in any other way, unless, of course, in cases where particular varieties are wanted that we know will not reproduce themselves from seed, so as to be certain of color or form; but in all cases where seed taken from a variety or species will reproduce itself exactly, or in cases where a general variety is wanted, the propagation by seed is invariably practiced. As propagation by seeds refers more usually to ornamental plants cultivated under glass, we will briefly relate our own practice, which we have greatly improved during the past few years, and in which we have attained almost unfailing satisfactory results. We have found that seeds sown in shallow boxes, from one and a half to two inches deep, can be given a far more uniform degree of moisture than when sown in earthen flower pots, or earthen seed pans made specially for that purpose. These boxes are made

from the ordinary soap box, from four to five being made from each, with the bottom boards so put on as to allow free escape of moisture, though, of course, not so wide apart as to allow the soil to wash through. These boxes are filled with finely sifted soil, such as has been run through a sieve fine as mosquito netting. This surface is then made perfectly level and smooth, and the seeds sowed on it as evenly as possible, and in thickness corresponding to the variety sowed, though it must be here remembered that in "union there is strength," and that, if sown too thin, weak seeds may fail to press up the soil if isolated too much. After the seeds are sown, and before they are covered, they are pressed down by a smooth board into the soil, so that the surface is again smooth and level.

The seed box is now ready for its covering. For the past year we have used finely-sifted Moss (Sphagnum) exclusively for covering. To prepare this it is rubbed through a mosquito wire sieve when dry, and sifted over the seed only thick enough to cover it, usually about one-sixteenth part of an inch. In the absence of Moss, dry refuse hops, cocoanut fiber, or leaves will answer, prepared in the same manner, the great object being to use a material light in weight, having non-conducting properties, and that will thus hold the moisture uniformly. Of all these, we think Moss the best, and now use nothing else, as its sponge-like character keeps just the right degree of moisture wanted. These seed boxes should be placed in the open sunlight, in the windows of the dwelling room, in the hot-bed or green-house, and never shaded, in a temperature running from 55 degrees to 65 degrees at night, with 10 de-

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grees higher during the day; and if a proper degree of moisture is applied, say a light sprinkling once a week, if there is life in the seed, germination is certain. As soon as the seeds have grown so as to attain the first true leaves, (that is, the first leaves that show after the seed-leaves,) they must be "pricked off" (which see) carefully in soft, light soil, similar to that used for the seeds, at from one to two inches apart, according to the kind. This will not only prevent them from damping off, as many of them are very apt to do, but they will be much stronger and suffer less when put into flower pots or replanted in the open ground. We prefer to replant the seedlings in the shallow boxes already described. And here we again find, that if the soil is mixed with half its bulk of sifted Sphagnum, we get a far better development of fibrous roots. They are more portable thus than if planted again in the soil of the hot-bed, or bench of the green-house, though, of course, after planting in the boxes these are put again in the hot-bed or green-house. After the seedlings have been planted in these boxes, lightly water them and shade for two or three days.

To such as have not the convenience of a hot-bed or green-house, vegetable or flower seeds may be sown in the shallow boxes above mentioned, and placed in the window of a south or east room, where the thermometer does not average less than 70 degrees. Success would be more complete, however, if panes of glass were placed over the seeds, resting on the edge of the box an inch or so from the soil. This would prevent evaporation, and render watering less necessary.

Propagation of Plants by Cuttings.—As now

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understood, this is a simple matter. Formerly no operation in horticulture was more befogged by ignorant pretenders, who, in writing or speaking on the subject, so warped the operation with troublesome conditions as to discourage, not only amateurs in horticulture, but inexperienced professional gardeners as well.

One of the first necessary conditions in the propagation of plants by cuttings is, that the plant from which the cutting or slip is taken must be in vigorous health. If weak or tainted by disease, failure is almost certain to result. If, for example, we wish to root cuttings of green-house or bedding plants, such as *Bouvardias, Chrysanthemums, Fuchsias, Geraniums, Heliotropes, Salvias, Verbenas*, etc., one of the best guides to the *proper condition* is when the cutting breaks or snaps clean off instead of bending or kneeing; if it snaps off so as to break, then it is in the condition to root freely; if it bends, it is too old, and though it will root, it will root much slower, and make a weaker plant than the slip that snaps off on being bent. With exceptions so few, and those of so little importance that it is hardly worth while to allude to them, cuttings of all kinds root freely from slips taken from the *young wood*, that is, the succulent growth, before it gets hardened, and when in the condition indicated by the "snapping test," as it is called. We believe we were the first to call attention to this valuable test of the condition of the cutting (snapping) in our work, Practical Floriculture, first published in 1868. A very general idea is current, that cuttings must be cut at or below an eye or joint. The practice of this sys-

tem leads undoubtedly to many cases of failure; not that the cutting at or below a joint either hinders or assists the formation of roots; but from the fact that, when a slip is cut at a joint, the shoot often has become too hard at that point, while half an inch higher up or *above* the joint, the proper condition will be found. We know that it will root even when in the too hard condition, but the roots emitted will be hard and slender, and, as a consequence, will not be likely to make a plant of the same vigor as that made from the cutting in the proper state; besides, as the hard cutting takes double the time to root, its chances of damping off from unfavorable atmospheric conditions are thus increased. With these instructions for the proper state of the cutting, we now proceed to describe the medium wherein it is to be placed, and the conditions of temperature, moisture, etc. If these are strictly followed, failure is an impossibility; for the laws governing the rooting of a slip are as certain as those governing the germination of a seed. In our own practice, when these conditions are strictly followed, failure is unknown.

The most proper condition of temperature to root cuttings of the great majority of green-house and bedding plants is 65 degrees of bottom heat, indicated by a thermometer plunged in the sand of the bench, and an atmospheric temperature of 15 degrees less. A range of 10 degrees may be allowed, that is, 5 degrees lower or 5 degrees higher, but the nearer the heat of the sand can be kept to 65 degrees, and that of the rest of the house to 50 degrees, the more perfect the success will be.

Sand is the best medium in which to place

cuttings; color or texture is of no special importance. What we use is the ordinary sand used by builders; this is laid on the hot-bed or bench of the green-house to the depth of about three inches and firmly packed down. When "bottom heat" is wanted, the flue or pipes under the bench of the green-house are boarded in, so that the heat strikes the bottom of the bench, thus raising the temperature in the sand.

From the time the cuttings are inserted in the sand until they are rooted, they should never be allowed to get dry: in fact, our practice is to keep the sand soaked with water, the cutting bench being watered copiously every morning, and often, when the atmosphere is dry, again in the evening. Kept thus saturated, there is less chance of the cutting getting wilted, either by heat from the sun or from fire heat; for if a cutting once gets wilted, its juices are expended, and it becomes in the condition of a hard cutting, in the condition in which, when bent, it will not snap nor break, which has already been described. To avoid this wilting or flagging of the cutting, every means that will suggest itself to the propagator is to be used. Our practice is to shade and ventilate in the propagating house or hot-bed just as soon in the forenoon as the action of the sun's rays on the glass raises the temperature of the house to 65 degrees or 70 degrees. This practice of ventilating the propagating house or hot-bed is, we are aware, not in very common use; many contending that the place where the propagating is done should at all times be kept close. We have tried both methods long enough and extensively enough to satisfy us beyond all question, that ventilating and

propagating at a low temperature is capable of producing a larger number of plants during the season than at a high temperature and in a close atmosphere. There need be no failures; and it has the important advantage of producing a *healthy* stock, which the close or high temperature system would fail to do in the case of many plants. We have often heard propagators boasting of rooting cuttings in five days. We are well aware that this may be done, but we are also aware that it is often done in damp and cloudy weather at the risk of the whole crop, and it must be done at a high temperature, which at all times causes the plants to draw up slender, and thus impairs their vigor.

Permitting a moderate circulation of air in the propagating house tends to prevent the germination of that spider-web-like substance, which, for want of a better term, is known among gardeners as the "fungus of the cutting bench." Every one who has had any experience in propagating knows the baneful effects of this; how that, in one night, it will often sweep off thousands of cuttings that a few hours before were in healthful vigor. But this dangerous enemy of the propagator requires, like vegetation of higher grades, conditions suitable to its development, which evidently are a calm atmosphere and a temperature above 55 or 60 degrees. Hence, to avoid this pest, we make every effort by shading, airing, and regulation of fire heat, to keep the atmosphere of the house so that it shall not exceed 60 degrees. This, of course, is not practicable when the outside temperature in the shade is above 60 degrees; but the temperature can be reduced considerably by dashing water

on the pathways and other parts of the house. It is rarely, however, that the outside temperature ever exceeds 60 degrees in the shade for any length of time in the district of New York before the middle of May, and all propagating had better be finished previous to that time, unless of tropical plants. In the fall months, about the middle of September, operations in propagating may again begin.

The temperature is prevented from rising in the house in various ways, some using canvas, or bast-matting, or painting the glass with lime or whitewash. We find the best and most convenient shading to be that formed by flexible screens made of common lath, planed and attached together like Venetian blinds, the laths being an inch or so apart; these can be quickly rolled or unrolled, and give an ever-varying modified shade, sufficiently cooling to the house, yet not darkening the cutting enough to impair its vigor. These are not unrolled in the morning until the temperature inside indicates it to be necessary, and are rolled up in the afternoon as soon as the sun ceases to shine on the glass, for it is of the utmost importance that the cuttings receive as much light as they will bear without becoming wilted. The time required by cuttings to root varies from eight to twenty days, according to the variety, condition of the cutting, and temperature. Verbenas, Fuchsias, or Heliotropes, put in in proper condition, and kept without ever being allowed to wilt, will root, in an average bottom heat of 65 degrees, in eight days, while Roses, Pelargoniums, or Petunias will take at least double that time under the same conditions.

It is best to pot off the cuttings at once when rooted, no matter how small the roots may be; half an inch is a much better length for them to be when potted than two inches, and the operation is much quicker performed when the roots are short than when long. But the main evils of delaying the potting off of cuttings are, that when left too long the cuttings grow up weak and spindling, the roots become hard, and do not take as quickly to the pot. The same care is required in shading and watering after potting, nearly, as in the cutting bench; for no matter how carefully taken up, in the operation of potting the delicate roots get less or more injured, and until they begin to emit roots are nearly as liable to wilt as the unrooted cuttings. Cuttings should always be placed in small pots, the best size being from two to two and a half inches wide and deep; if placed in larger pots the soil dries out too slowly, and the tender root, imbedded too long in a mass of wet soil, rots and the plant dies. Though we generally prefer soil to be unsifted in potting large plants, yet for newly potted cuttings it is better to be sifted fine, not only that it is more congenial thus to the young roots, but also that the operation is quicker done with finely-sifted soil. After potting, the cuttings are placed on benches covered with an inch or so of sand, watered freely with a fine Rose watering pot, and shaded for four or five days; by that time they will have begun to root, when no further shading is necessary. These methods of propagating by cuttings are such as are now practiced by commercial florists, but for amateurs in horticulture, or gardeners who have charge of private green-houses, there is

usually no necessity for a regular propagating house, unless the requirements for plants are unusually large, as the

"*Saucer System*" of Propagation will answer every purpose, and it is the safest of all methods in inexperienced hands. We were, we believe, the first to introduce this system some twenty years ago, and here repeat the directions first given in one of the horticultural journals at that time. "Common saucers or plates are used to hold the sand in which the cuttings are placed. This sand is put in to the depth of an inch or so, and the cuttings inserted in it close enough to touch each other. The sand is then watered until it becomes in the condition of mud, and placed on the shelf of the green-house, or on the window-sill of the sitting-room or parlor, fully exposed to the sun, and never shaded. But one condition is essential to success: until the cuttings become rooted *the sand must be kept continually saturated, and kept in the condition of mud;* if once allowed to dry up, exposed to the sun as they are, the cuttings will quickly wilt, and the whole operation will be defeated. The rules previously laid down for the proper condition of the cuttings are the same in this case, and those for the temperature nearly so; although, by the saucer system, a higher temperature can be maintained without injury, as the cuttings are in reality placed in water, and will not droop at the same temperature as if the sand was kept in the regular condition of moisture maintained in the propagating bench. Still, the detached slip, until rooted, will not endure a continuation of excessive heat, so that we advise, as we do in the regular method of propagating, that the attempt should not be made to root cut-

tings in this way, in this latitude, in the months of June, July, or August, unless with plants of a tropical nature. When the cuttings are rooted, they should be potted in small pots, and treated carefully by shading and watering for a few days, as previously directed."

Propagation by Layering.—Although layering may be done with the ripened wood of vines or shrubs of the growth of the previous season, yet it is preferable to use the shoot of the present year in its half green state; for example, a Rose or flowering shrub is pruned in the usual way in spring; by June or July it will have made strong shoots one, two, or three feet in length from or near the base of the plant. Take the shoot then in the left hand, (after having stripped it of its leaves for a few inches on each side of where it is to be cut,) keep the fingers under the shoot, and make a clean cut on the *upper part*, an inch or so in length, and to about half the thickness of the shoot, then slightly twist the "tongue" or cut part to one side. Having opened a shallow trench, fasten the branch down with a hooked peg, and cover with earth. It is a good plan to place a flat stone over the layer to prevent the soil from drying out. This plan of cutting the shoot on the *upper* side we have never seen in illustrations showing the manner of layering, it being usually either on the side or under; but we have found in practice that it is much the safest plan, as the "tongue," when cut on the top part of the shoot, has far less chance to be broken off.

Propagation by Layering in Pots is the process of layering shoots or runners of plants in pots, so that, when the root forms in the pot, the plant can be detached without injury to it, as the roots are confined exclusively to the soil in the pot. Layering plants in pots can be done with Roses, vines, or shrubs of any kind, with always more certainty of making a plant quicker than by the ordinary way of layering the shoot in the soil. This system of propagating Strawberries has been largely practiced during the past ten years in the United States, and is now a favorite method. For details, see *Strawberry*, p. 221.

Propagation by Layering in the Air.—About twenty years ago we published a method of propagating Geraniums, that we believed originated with us, and which we called, for want of a better term, "Layering in the Air." It consists in tonguing the shoot to be used as a cutting half through with a knife, as in the ordinary layering; the shoot so treated formed granulations, or "callus," on the cut surface, and was in a condition to form roots immediately on being detached and put into the earth. A year or two ago we bethought ourselves of our long-forgotten plan of "layering in the air," but this time we improved upon the former way of doing it. Instead of tonguing the shoot to be used for a cutting, as before, it was merely snapped short off at a point where the condition of the shoot or slip would make it hang on to the plant by the merest shred of bark. Slight as this strip of bark is, it is sufficient to sustain the cutting, without any material injury from wilting, until it forms the "callus," or granulated condition, which precedes the formation of roots. The cutting, or slip, may be detached in from ten to twelve days after it has been broken in the manner described, and then potted in two or three

inch pots. If watered and shaded rather less than required by ordinary cuttings, it will form roots in ten or twelve days more, and not more than two per cent. will fail. Plants of the Tricolor Geraniums, which all know are difficult to root under the ordinary modes of propagation, particularly in hot weather, do excellently by this plan.

The advantage of this method is not only that the slips root with far greater facility, but the injury to the stock or mother plants is far less than if the slips had been cut clean off instead of being only partly detached. Many other plants can be thus propagated with safety, notably *Begonias, Petunias, Poinsettias*, and such plants, the cuttings of which have a tendency to damp in hot weather.

Prothallus.—A term intended to indicate the first results of the germination of the spores in the higher Cryptogams.

Pseudo.—In Greek compounds means *spurious.*

Pseudo-bulb.—A stem having the appearance of a bulb, but not its structure, seen in the thickened above-ground stem of many Orchids.

Pterocarpus.—When a fruit is winged.

Pulverulentus, Pulverulent.—Covered with a powdery substance.

Pumilus.—Short, dense, or close-growing, as compared with other species of the same genus or family.

Pungent.—Terminating gradually in a hard, sharp point.

Puniceus.—Pure red. The same as Phœniceus, which see.

Pustular, Pustulate.—Covered with glandular excrescences, like pustules.

Q.

Quadrifarious.—Arranged in four rows or ranks.

Quadrifid.—Divided four times.

Quinate.—Arranged in fives.

R.

Race.—A term applied to *varieties* of plants as distinguished from *species*, when they can be perpetuated by seed through a series of generations, when they become permanent varieties. The Cauliflower, Broccoli, Cabbage, etc., are distinct *races* which have sprung from the species *Brassica oleracea.*

Raceme.—An inflorescence in which the flowers are arranged singly on distinct pedicels along a common axis; a spike with stalked flowers, as the *Laburnum.*

Racemose.—Flowering in a raceme.

Rachis.—The axis or central stem of some kinds of inflorescence.

Radiant.—A flower is said to be radiant when, in a cluster or head of florets, those of the circumference or ray are long and spreading, and unlike those of the disk.

Radical.—Springing from the root, or from its crown.

Radicans.—Rooting from the stem.

Radix.—The root; the descending axis.

RAK

Rake.—This is the implement usually used for leveling the soil after digging, or in cleaning up walks, etc., but for many years we have found the steel rake, of a size suitable to the work to be done, to be the most effective tool used in our grounds for the prevention of weeds.

Nearly all our first "hoeing" is done by these rakes; that is, the ground, in from three to four days after planting or sowing, is raked over, thus destroying the weeds just as they begin to germinate and before they appear on the surface. In from five to ten days, according to the state of the weather, the ground is again gone over with the rakes. We are no believers in deep hoeing in newly-planted ground; it is only when plants begin to grow, and when the soil gets hard, that deep hoeing is beneficial. By the use of the steel rake in this manner, three times as much work can be done as by the hoe. It cannot be used, of course, if the weeds are up, but if it is thus used before the weeds appear on the surface, one man will do more than six will if delay has been made until the weeds have to be cut down by the hoe.

Ramose.—Branching.

Ramuli.—Twigs or small branches.

Ray.—Parts diverging in a circle from a central point. The outer flowers when differently formed from the inner in umbels.

Receptacle.—That part of the fructification which supports the other parts.

Reniform.—Kidney-shaped in outline.

Repens.—Creeping.

Reticulate, Retiform.—Resembling net-work.

Retrorse.—Backwards.

Retuse.—Terminating in a round end.

Revolute.—Rolled back; as certain tendrils and the sides and ends of some leaves.

ROC

Rhizome, Rhizoma.—A prostrate, more or less subterranean stem, producing roots and leafy shoots.

Rhomboid, Rhombeus, Rhomboidal.—Resembling a rhombus; oval, a little angular in the middle, as the leaf of *Hibiscus rhombifolius.*

Rib.—The principal vein or nervure which proceeds from the petiole into a leaf; also any firm longitudinal elevation.

Ringent.—Gaping.

Riparious.—Growing on the banks of rivers or lakes.

Rock-work.—Often, on cleaning up after the formation of new grounds, masses of rock and stumps are present, which are often difficult materials to get rid of; such may be arranged in natural-looking mounds or screens for wind-brakes, which, when the interstices are filled in with soil and planted with bright leaved or bright flowering plants, can be made most attractive; or in locations where rocks exist in their natural condition, they can be made highly interesting and ornamental by setting out plants of a drooping or creeping habit to overhang among them. The rocky caves in the grounds of the National Soldiers' Home at Dayton, Ohio, have been so utilized both inside and out, and are one of the most attractive objects of that grandly kept place. Purely artificial "rock-work" may be made by clinkers from iron or other furnaces being dipped in hot lime, which gives a coloring of pure white to their grotesque shapes. These are used in building the "rock-work" to the shape and dimensions wanted, care being taken that, in forming the upper courses, cavities eight or twelve inches deep and wide be left to be filled with soil in which to grow the plants. For this style of rock-work

bright colors should be used to contrast with the ground-work of white. A simple yet elegant effect is produced by planting with Scarlet Geraniums, and nothing else. But if desired to be varied, bright colored Verbenas, Coleus, Lobelias, Rose-colored Geraniums, Golden Moneywort, and many other similar plants can be used with effect. A rockery so formed and planted, without having any pretensions to being natural, is always an attractive and interesting object on a well-kept lawn. If cement or "water-lime" is used instead of lime, the rock-work can be made of a pleasing drab color.

Root.—The descending axis. See *Radix.*

Rotate, Rotæform.—Resembling a wheel.

Rotation of Crops.—All observing cultivators soon discover that, no matter how fertile a soil may be, the same kind of crop cannot be grown so well on it successively, as if it were alternated with a crop of an entirely different character. No satisfactory reason can be assigned for this that we know off, unless in the familiar case of the Cabbage crop. We find that if Cabbages on most soils are grown two years in succession, the crop will be affected by the disease known as "Club Root," (which see;) but in this particular instance we get at a tangible cause. A great many theories have been assigned why the same crops deteriorate by being grown successively on the same soil, but they have been far from satisfactory, and in no case that we know of, unless in the case of the Cabbage, or Brassica tribe, have they led to any beneficial practical results. The following general rules have been laid down as a guide:

First. Plants of the same natural order should not be planted to succeed each other. *Second.* Crops which for a number of years occupy the ground, such as Strawberries, Rhubarb, or Asparagus, should be succeeded by annual crops, such as Cabbages, Lettuce, or Radishes. *Third.* Crops grown for their heads, such as Cabbage, Cauliflower, or Lettuce, should be succeeded by plants grown for their roots, such as Parsnips, Carrots, or Beets. It is not always practicable to vary crops according to rules, nor should such rules be taken as arbitrary, but only as a guide. When vegetables or fruits are grown for market, the necessities of the cultivator compel usually double crops of the land each season, and that, with heavy manuring and deep cultivation, seems to do away, to a considerable extent, with any need for systematic rotation, which would often be found to be impracticable. As has been previously said, the crops of all others that we find most benefited by change are the Cabbage tribe, together with the allied families of Turnip, Radish, etc. While, on the other hand, Onions never seem to be injured by successive plantings on the same soil. When space is limited, or when it is not convenient to rotate crops, the next best thing is deep culture, by trenching or subsoiling, which see.

Rudimentary.—In an incomplete condition.

Ruga.—A wrinkle; hence *rugose*, covered with wrinkles.

Rupestris.—Growing on or near rocks.

Rust.—This term is used for a destructive form of disease affecting many widely different kinds of plants. It is known by the dry, shriveled, or curly appearance of the foliage, the leaves being less or more discolored with blackish blotches or spots. It is not always easy to determine the cause, but we think it safe to say that in many plants it is owing to a weak-

ened condition of the plant that invites the attacks of parasites, causing the "rust." This we have proved to be the case so often in our practice, that we now no longer doubt on the subject.

We find, for example, if we leave such plants as Heliotrope, Verbenas, Lantanas, Pelargoniums, or other plants subject to the disease known as "black rust," so that they become enfeebled for want of pot room, they are almost certain to be affected. A few years ago we tried an experiment on one hundred each of Heliotrope and Verbena plants, (that were in fine healthy condition, growing in two-inch pots,) of shifting one-half of each lot into three-inch pots, the other half being allowed to remain unshifted. The shifted plants grew vigorously, and in six weeks were twice the size of the others, and in fine, vigorous health; while those unshifted, becoming impoverished for want of new soil, were stunted, and nearly all became affected by "black rust."

The examination of the diseased leaves by a powerful microscope revealed numbers of crab-like mites feeding on the leaves, while on healthy leaves of the same plant not a parasite could be found. The inference then is, that the weak-

ened condition of the plant made it a congenial soil for the deposit of the germ of this parasitical insect. Another kind of "rust," evidently distinct from the preceding, is now one of the most serious obstacles to the forcing of Lettuce under glass, whole crops being utterly destroyed by it. We are inclined to believe that the Lettuce rust is the work of a vegetable parasite, as a microscopic examination of the diseased leaves show a fungoid structure very similar to Rose mildew. The only remedy we can advise in this case is to work with young plants on fresh soil, as far as practicable. The usual method of obtaining Lettuce plants for forcing, is to use plants sown or planted in cold frames in fall, for all the plantings during the entire winter; but we have found that such plants are more liable to the disease than those sown later; and now the most successful growers of Lettuce for winter, use only the cold frame (fall sowed plants) for their first crop, which is usually ready at Christmas, while for the succession crops, new sowings are made about six weeks before the plants are needed, it being found that these fresh young plants are less liable to the rust than the others.

S.

Sabulose, Sabulosus.—Growing in sandy places.

Saccharate.—Having a sweet taste.

Sacciform.—Having the form of a bag.

Sagittate.—Shaped like an arrow.

Samara.—An indehiscent fruit producing a wing-like expansion from its back or end.

Sap.—The juice of a plant.

Sapid.—Having an agreeable taste.

Sapor.—The taste which a thing has.

Sarmentum.—A runner.

Sarmentose.—Producing runners.

Saxatilis.—Growing on rocks or stones.

Scabrous.—Rough with little asperities.

Scales.—Minute rudimentary leaves.

Scandens.—Climbing, but not twisting.

Scape.—A stem rising from the crown of a root, and bearing nothing but flowers.

Scion.—A cutting intended for a graft.

Secretion.—Any organic but unorganized substance produced in the interior of plants.

Secund.—All the flowers or leaves, or other organs, turned toward the same side.

Seed Drill.—This is the implement used in sowing field crops of Onions, Carrots, Turnips, etc. It can be adjusted so as to sow all sizes of seeds. To use the seed drill successfully, the ground must be soft and smooth. It is never safe to use it in harsh clayey or stony soils. By its use only about one-fourth the quantity of seed is required than when sown by hand; and the plants coming up in less numbers, they are easier thinned out. It is rarely used in small gardens.

Sedges.—A tribe of marsh plants.

Semi.—As a prefix denotes half.

Seminal.—Belonging to the seed.

Senarious.—Arranged in six together of the same kind.

Sepals.—The divisions of the calyx.

Sepaloid.—Resembling a sepal.

Septum.—The partition that divides the interior of the fruit.

Sessile.—Sitting close upon the body that supports it, without any sensible stalk.

Seta.—A bristle of any kind; a bristle tipped with a gland; a slender prickle.

Shading.—A great many plants are invigorated by a moderate amount of shade from the intensity of the sun's rays during the summer months, requiring more or less, according to their nature, those whose native habitat is shady woods requiring more than those that grow partly or fully exposed to sunlight. Such plants as Dracænas, Ferns, Palms, Fuchsias, Camellias, Orchids, and the greater part

of cultivated tropical plants, when grown under glass, are benefited by a light shade, even in the winter months, and a heavier one as the hot weather advances. Such plants as Roses, when grown under glass, only require a very slight shading during the summer months, (say June, July, and August,) which requires to be removed when the fall months begin. A simple and cheap shading, which we have found excellent in every respect, is Naphtha mixed with a little white lead, so as to give it the color of thin milk. It is syringed over the outside of the glass, and costs only about twenty-five cents for every 1,000 square feet of surface. This shading modifies the intensity of the sun's rays without much lessening the light; and though it adheres tenaciously to the glass, it is easily rubbed off in fall, particularly after the first frost. Shading is sometimes necessary with such plants as are set out of doors in summer, and for this purpose a light framework is constructed and covered on the top with portable screens, made of common lath, or strips of that width, which are nailed to light frames. A convenient size is four by six feet. They are sometimes tacked on to the framework, but are better portable, as in dull weather the plants are better without additional shade.

Sheath.—A part which is rolled round a stem or other body, as the lower part of the leaf that surrounds the stem.

Shoot.—Any fresh branch, more especially one given off immediately from the upper extremity of the root.

Shrub.—A woody plant which does not form a true trunk like a tree, but has several stems rising from the roots.

Silique.—The long taper pod of *Cruciferæ*.

Silky.—When hairs are glossy, like silk.

Silvery.—Having a whitish metallic luster.

Simple.—Not compound; not branched.

Sinuate.—Having many large blunt lobes.

Slashed.—Where a surface is divided by deep and very acute incisions.

Slugs.—A certain remedy against Slugs is salt strewn along the edges of the bench or table. It is a sure dead line, the crossing of which is fatal to the slugs.

Smooth.—Free from asperities or hairs.

Sobole.—A creeping rooting stem.

Soboliferous.—Producing young plants from the roots.

Soil.—A good soil is the base of success in all operations of the garden. What are the properties of a good soil is not very easy to convey in writing, as quality is not always confined to a particular color or texture, though the practical horticulturist can nearly always tell, by turning up with a spade, the relative qualities of a soil. If selection can be made for general purposes, a rather dark-colored soil should be chosen, neither too sandy nor too clayey, and as deep as can be found, but not less than ten inches, or the chances are that it will not be of first quality. It should overlay a sandy loam of yellowish color, through which water will pass freely. The condition of the *subsoil* is of the first importance in choosing soil. Sandy loam we believe to be the best; next to that a porous gravel, and the least to be desired is a stiff blue clay. Land having a clay subsoil is always later in maturing crops than one having a sandy or gravelly subsoil; and if the land is at all level, draining is indispensable at every fifteen or twenty feet, or no satisfaction can be had in culture. It is a common belief that poor land can be brought up by cultivation. A portion of the land used by us has the blue clay

subsoil above referred to, and although in the past twenty years we have expended large sums in draining, subsoiling, and manuring, we have failed to get it into the condition of other portions of our grounds, having the proper subsoil, and do not think that any culture would bring it into as good shape.

The soil for potting plants in is often a matter causing great anxiety to the amateur florist, many of the books giving advice on the subject insisting that special kinds are indispensable for different families of plants. We are glad to tell our readers that in our own establishment, where upward of two millions of plants are now grown annually in pots, we do not find it necessary to make these nice distinctions. The great bulk of the soil we use in potting is composed of sods cut about three inches deep from any good sod land, preferring such as is known as sandy loam. The sods are heaped up in alternate layers of one-fourth of thoroughly rotted horse or cow manure, or rotted refuse hops from breweries, when such are obtainable. Either of these three manures will do separately or mixed together, as convenient. This compost is better to stand six or eight months, but often our necessities compel us to use it much sooner, which makes no material difference, provided it is at a season of the year when the sod will rot. The manure and sods are thoroughly mixed and chopped up, and for the smaller plants is run through a fine sieve.

Peat, so much insisted on as a necessity for Azaleas, Ferns, and other fine rooted plants, we rarely use, substituting instead either mould formed from thoroughly rotted refuse hops, or dried Moss (Sphagnum) run through a fine sieve;

either of these, mixed in about equal parts with our sod mould, we use instead of peat for all thread-like rooting plants. Besides, true peat is rarely to be found in this country, and is well replaced by leaf mould, if necessary.

Sowing.—Is one of the operations of the garden that it is easy to give instructions in; and if they are carefully followed, there need never be failure. One of the most important things is the condition of the soil, which should be as thoroughly broken up and pulverized by plowing and harrowing, digging or raking, as its nature will admit, care being taken that it is worked when in that state that is neither too dry nor too wet. If too dry, particularly if the soil is of a clayey nature, it cannot well be got in the proper friable condition without an unusual amount of labor; and, on the other hand, if too wet, it clogs and bakes, and becomes so hard that the air cannot penetrate, leaving it in a condition from which good results cannot be obtained. We have seen stiff, clayey land that has shown bad results for years after, by being plowed and harrowed while too wet. Another condition of the soil, before sowing seeds, is to have the surface as smooth and level as possible. Seeds can either be sown broadcast or in drills, and for all garden operations the sowing is mostly done in drills. If sowing such vegetables as Parsnips, Onions, Beets, or Carrots is to be done on a large scale, the use of the Seed Drill (which see) will save seed and labor; but if for ordinary garden use, it had better be done by hand. If only a small quantity is wanted, the drills can be made with a hoe; but if larger, a simple implement known as a *Marker* (which see) had better be used. It is often given as a rule, that seeds should be covered with soil only as deep as their own bulk; but this rule can hardly be followed in our dry climate, as many kinds would dry up or shrivel with such a slight covering. As an example, Onion or Carrot seed should be covered from a half inch to an inch, while Beans or Pease should be covered from two to three inches. For sowing of *flower seeds*, see "Propagation of Plants by Seeds." But the most important matter of all in sowing seeds in the open ground is, that they be properly firmed in the soil. A simple way is to tread the rows, after the seed is sown, with the feet. This is detailed fully in Onion culture, page 150.

Spadix.—A succulent spike bearing many sessile, closely placed flowers; a spike inclosed in a spathe.

Spathe.—A large bract rolling over an inflorescence, and guarding it while young, as in the Calla and Arum.

Sperma, Spermum.—In Greek compounds, a seed, or any seed-like part.

Spherical.—Round like a sphere.

Spica.—A spike, which see.

Spicate.—Having a spike.

Spike, Spica.—A long simple axis with many sessile flowers. A *compound spike* is a collection of spikes arranged in a racemose manner.

Spikelet.—The small terminal group of florets in Grasses inclosed within one or more glumes.

Spine.—A stiff, sharp-pointed body, consisting of woody tissue covered with cellular tissue; a thorn.

Spiral.—Twisted like a screw.

Spongiole, Spongelet.—The young, tender extremity of a root, by which fluid food is absorbed from the earth.

SPO

Sponge.—Having the texture of a sponge.

Sporadic.—When a given species occurs in more than one of the separate districts assigned to particular Floras.

Spore, Sporule.—The reproductive body in cryptogamous plants, analogous to the seed of phænogamous plants

Spur.—A tubular extension of the lower part of a petal or monopetalous corolla; a loose prolongation of the base of a leaf beyond its point of attachment. The same as Calcar, which see.

Squarrose.—Rough with projecting scales.

Stalk.—The stem or support to an organ, as the petiole of a leaf, the peduncle or pedicel of a flower, etc.

Stamen.—That organ of the flower which contains the pollen.

Staminode, Staminodium.—A rudimentary stamen, or what appears to be so.

Standard.—The fifth petal of a papilionaceous flower.

Stellate.—Radiating from the center like a star.

Stem.—The ascending axis of a plant, from which leaves, flowers, and fruit are developed.

Stigma, (pl. *Stigmata.*)—That surface of a style, usually at its extremity, to which the pollen adheres when it fertilizes the ovules.

Stimuli.—Stinging hairs, as in Nettles.

Stipe.—The stalk of Ferns up to the first pinnæ.

Stipules.—Processes or appendages of various kinds, usually leaf-like, arising from the base of a leaf, usually from its sides; leaf-like appendages at the base of the petiole.

Stock.—Synonym for a race. A plant to which a graft or bud has been applied.

Stole, Stolon.—A sucker; a lax trailing branch given off at the summit of the root, and

SUC

taking root at intervals, whence fresh buds are developed.

Stoloniferous.—Producing many stoles.

Stool.—A plant from which "layers" are propagated, by bending its branches into the soil, so that they may take root.

Strictus.—Perfectly straight or upright.

Structure.—The peculiar manner in which the several organs, elementary or compound, are disposed in plants.

Style.—The part which bears the stigma; the narrowed upper end of a carpellary leaf.

Sub.—In composition means somewhat or approaching; as *sub-rotund,* somewhat round; *sub-globose,* approaching globular.

Subsoiling.—This is indispensable to the best culture, either in the garden or on the farm. On soils having a clayey or hard-pan subsoil, the subsoil plow should be used at least every two years. It accomplishes the work of loosening and pulverizing, and thus admitting air to a depth of eighteen or twenty inches, or twice the usual depth turned up by the surface plow. In our own practice in our stiff clay soil, we use it nearly every alternate year. The subsoiler now used stirs, loosens, and pulverizes the soil only, but does not invert it, following immediately behind in the furrow made by the surface plow of course, or the necessary depth could not be attained. The implement is made for one and two horses. On light sandy subsoils the one horse size is sufficient, but for clay or hard-pan two powerful horses are necessary to get to the proper depth. See *Plowing.* When subsoiling is done by the spade it is called *trenching,* which see.

Subulate, Subuliform.—Awl-shaped; linear, tapering from a broadish base to a fine point; a long, narrow triangle.

Succulent.—Very cellular and juicy.

SUC

Succulents.—Plants possessing thick, fleshy leaves, such as Cacti, Sedums, Sempervivums, Crassulas, etc.

Suffruticose. — Half-shrubby; having a somewhat shrubby habit.

Sulcate.—Furrowed, channeled.

Superior.—Growing above anything. An ovary is superior when it grows above the origin of the calyx.

Surculi.—Young shoots.

TEM

Suture.—The line of junction of two different parts.

Sylvestris, Sylvaticus, Sylvan.—Growing in woods.

Syn.—In Greek compounds means union, adhesion, or growing together.

Syngenesious.—Having the anthers united at their edges, so as to form a tube; belonging to the nineteenth class in the Linnæan system.

T.

Table, Stage, and *Bench.*—These are the different terms used for the structure whereon plants are set in the green-house. The *bench* or *table* more particularly refers to one flat platform, which, if in the front of the green-house, is from three to four feet wide; if in the middle or center of the house, seven or eight feet wide, and from two to three feet in height, according to the style of the house. These widths and heights are important as being the most convenient for use, as well as to show the plants to the best advantage. The *Stage* is a series of platforms, placed usually in the center of the green-house, being of various widths, from one to three feet. For instance, if the base width of the platform be nine feet, three stagings of three feet each would be required (each elevated a foot above the other) to make the width. This style of green-house benching, however, is less to be recommended than one platform of the same height, as the latter is not only more convenient to work with, but the plants show on it to better advantage than if elevated too high.

The green-house benches are usually made of inch boards, but in our own practice we have for the past three years had all the "sheeting" for our benches made of rough roofing slate, over which is laid half an inch of cement. These materials cost only about 25 per cent. more than the board benches, and will be an immense saving, as the wooden benches rot out from the heat and moisture in four or five years. The skeleton or frame-work of the benches we make of Yellow Pine. If the frame-work were made of iron, such benches would be indestructible; but even with the pine wood frame-work they will stand for twenty years, as the cement covering laid over the slates prevents the water getting to the wood work. Care, however, must be taken to leave spaces every ten feet or so, where the water can escape through the bench. For the material covering the bench on which to set the plants, see *Drainage.*

Tegmen.—The inner skin which covers the seed; the glumes of grasses.

Tegmentum.—The outer scales of a leaf bud.

Temperature.—A temperature suited to the nature of the plant is one of the most im-

TEM

portant conditions to the well-being of plants under cultivation, and the nearer we can come to the conditions of temperature and moisture of the native habitat of the plant, the nearer we come to perfection in cultivation. Thus we find that in our garden weeds, the Chickweed (*Alsine* or *Stellaria media*) is only troublesome in early spring and in the fall, when the average temperature is perhaps 50° or 60°, because it is a native of a country (Britain) where there is no higher average; while our too familiar Purslane (*Portulaca oleracea*) only rears its head to injure in the dog days, when the thermometer averages 70° or 80°, because it is an importation from the tropics.

A large proportion of Lima Beans, Sweet Corn, and other tropical vegetable seeds annually perish by being sown two to three weeks too early by our impatient amateur horticulturists; while, on the other hand, the colder blooded Parsnip or Carrot all but refuse to germinate, and often fail to grow in the hot summer weather. Seeds of Calceolarias, Cinerarias, Primroses, Pansies, etc., which in England are sown and germinate freely in July, will in a majority of cases utterly fail if attempted at the same date here, where we have 15° to 20° higher temperature and a drier atmosphere. We hear of hundreds of failures of this kind every season, which are laid to the quality of the seeds by Scotch and English gardeners, who have not yet had experience with our American climate. The same seeds, sown during the months of February, March, or April, or September or October, would germinate without trouble, because the temperature and atmosphere then can be made inside congenial to their nature.

TEM

The same necessity for congenial temperature exists in growing matured plants, and one of the main causes of want of success in cultivating plants under glass is a want of knowledge, or carelessness in keeping a temperature unsuited to the growth of the plants. In ordinary green-house collections the fault is oftener in the temperature being kept too high than too low, for it is usually much easier, requiring far less watchfulness by the person in charge to keep up a high temperature. The injury done by this is gradual, and will not, like the action of frost on the plants, show in the morning. In consequence of this, we often see the green-houses containing Camellias, Azaleas, Pelargoniums, Carnations, etc., sweltering under a continued night temperature of 60° or 65°, when their nature demands 15° lower. In large establishments, where there are a number of green-houses, this is made an easy matter by placing the proper number of four-inch pipes in a green-house to suit the different temperatures; for example, in our own establishment, where our houses are uniformly twenty feet wide, for a temperature of from 35° to 40° in coldest weather, we use four runs of pipes, that is, two pipes on each side; for 40° to 45° we use five pipes; for 45° to 50° we use six pipes; for 55° to 60° we use eight pipes; and for 65° to 70° we use ten pipes.

It is true, we too often see collections of hot-house and green-house plants intermingled, and attempts made to grow them, which, of necessity, result in failure to one or the other. The temperature to grow, in healthy condition, Dracænas, Crotons, Coleus, Bouvardias, or Poinsettias, (hot-house plants,) would not be likely to

maintain Azaleas, Camellias, Verbenas, Carnations, or Geraniums long in a healthy state. The same rules follow as to the propagating-house, showing the necessity of observing the requirements of their different natures. See Propagation of Plants by Cuttings.

The subject is one that relates to so many varieties and different conditions of organism at the different seasons of growth, that it is impossible to convey to the inexperienced what these varieties and conditions are; but our object is to impress upon inexperienced readers what we have long believed to be an important truth, that the supplying the proper conditions of temperature to plants under glass, according to their different natures and conditions, has as much to do with their welfare as any other cause, if not more; and that often, when ascribing the unhealthy state of a plant to uncongenial soil or defective drainage, or the "damping off" of some favorite cutting to the way it was cut or the sand it was put in, the true and sole cause of failure was nothing more than condemning them to an atmosphere uncongenial to their nature.

Tephrosius.—Of an ash gray color.

Teres, Terete.—Tapering; free from angles; cylindrical, or nearly so.

Ternate, Ternary.—Growing in threes; a whorl of three.

Tetra.—In Greek compounds means *four.*

Tetrachotomous.—A stem that ramifies in fours.

Tetradynamous. — Having six stamens, of which four are longer than the two others.

Tetragynous.—Having four styles.

Thallus.—A fusion of root, stem, and leaves into one general mass; the cellular mass

of which the lower cryptogamous plants are entirely composed.

Thyrse, (adj. *Thyrsiform.*)—A kind of dense panicle like that of the Lilac.

Tomentose.—Covered with cottony hairs.

Tomentum.—The down which produces the tomentose character.

Toothed.—Dentate; having small divisions on the margin.

Top Dressing.—See *Fertilizers.*

Tree.—Any woody plant of perennial duration with a trunk or single stem rising from the ground.

Trenching.—This is a means of preparing the soil but little practiced in the United States, though still much in use in old English gardens. It consists in making a trench from one and a half to two feet deep, and of nearly the same width, the earth from which is wheeled to the rear of the ground to be trenched; then a line is set across the bed to the width of the excavation, (one and a half or two feet, as it may be;) the top spit of this is thrown in the bottom of the trench, the under part being thrown on the top; in a word, trenching is simply reversing the soil, turning it upside down to such a depth as may be decided on. The practice is proper enough in soils that are deep enough; but when trenching is practiced in say a top soil only twelve inches deep, and a clayey subsoil is thrown on the top, or even mixed well with the top soil, injury may be done to the soil from which it will never recover. A subsoil of sand is not quite as bad thrown on the top or mixed with the soil, but in either case the subsoil should only be loosened, as in Subsoiling, (which see,) and allowed to remain without being mixed with or thrown on the top of the soil proper.

Triadelphous.—Having the stamens collected into three distinct bundles, the filaments of those in separate bundles cohering.

Triandrous.—Having three stamens.

Trianthus.—When the peduncle has three flowers.

Trichophyllus.—Where a leaf is either hair-like, or terminates in a hair.

Tricotyledon.—A plant whose embryo is furnished with three cotyledons.

Tricuspidatus.—Having three points.

Trifid.—Divided into three.

Trifoliate.—Composed of three leaflets, as the leaves of Clover.

Trigynous.—Having either three pistils or at least three distinct styles.

Tripartite.—Divided into three parts nearly to its base.

Tripetalous.—When a corolla consists of three petals.

Tripinnate.—When the leaflets of a bipinnate leaf become themselves pinnate.

Truncate.—Blunt, as if cut off at the end, as the leaf of the Tulip tree.

Truncus, Trunk.—The bole or principal stem of a tree.

Tuber.—An underground fleshy stem, like the Dahlia.

Tubercles.—Little round knobs.

U.

Umbel.—An inflorescence in which the stalks radiate from a common point, and form a flat or convex surface above, as in the Carrot. It is simple or compound.

Umbelliferæ.—See *Apiaceæ*.

Umbilicus.—The hilum of a seed.

Unarmed.—Destitute of spines or prickles.

Undershrub.—A woody plant of small size, the ends of whose branches perish every year.

Uniflorus.—Supporting a single flower.

Unilateral.—Turned to one side; one-sided.

Unisexual.—A plant producing flowers of one sex only.

Urceolate.—Pitcher-shaped, contracted at the mouth.

Urens.—Stinging.

V.

Valvular.—Consisting of valves or seed-vessels.

Variabilis, Varians.—Presenting a variety of character; as when leaves are variously modified on the same plant.

Variety.—A term indicating a lower grade of subdivision, next to the species; as the different sorts of Pears, Apples, Geraniums, Roses, etc.

Vases.—These are formed of iron, stone, earthenware, etc., and are usually raised on a pedestal to a height of four or five feet. They are of various sizes and patterns. The bowls for the soil vary in depth from six to eighteen inches; but in all cases holes must be made in the bottom, (if not already there,) to allow free drainage for water; for without these (and some are made without them) the soil would soon get saturated and sour.

Almost the same character of plants is used for planting vases as for window boxes, (which see.) A very beautiful practice is now in use to plant them in early spring with Pansies, which remain in bloom until June, the time at which the summer plants are ready to be planted to take their place. Vases are usually exposed to the full force of the sun on the open lawn, and, consequently, require a great deal of watering to keep them in good condition. By the use of Moss on the surface (see *Moss Mulching*) a great deal of labor will be saved.

Venation.—The arrangement of veins in a leaf, etc.

Ventilating.—Or "Airing," as gardeners call it, is an important operation in growing plants under glass, and ignorance or carelessness in the work often results in dire disaster to the contents of the hot-bed, green-house, or grapery. It often happens, when inexperienced country carpenters undertake the erecting of green-house structures, that they are built with entirely inadequate means of ventilation, so that, no matter how careful the person in charge may be, he has not the means allowed to provide sufficient ventilation. In a span-roofed green-house or grapery, having a base width of twenty feet, the glass roofs sloping to the east and west will be each about thirteen feet, making twenty-six feet in the span. To properly ventilate a structure of this kind, movable sashes, two feet in width, extending the entire length of the roof, should be hinged to the apex on the *east* side. The sashes, when lifted up by the patent ventilating apparatus, are raised from one inch to two feet, as desired, the entire length; thus, when fully

up, about one-thirteenth part of the entire glass roof is thrown open for ventilation; and in hot days this is often found to be none too much. In a series of green-houses, requiring different temperatures, it is a good plan to mark the maximum and minimum allowed for ventilation, close to each thermometer, so that the workman in charge of ventilating can be held to accountability; for example, if 70 is the degree required, let the maximum of temperature be 75° and the minimum 65°, allowing a range of ten degrees. The patent ventilating apparatus usually costs about seventy-five cents or one dollar per running foot; but it is indispensable to a well-regulated green-house or grapery, from its power to grade the amount of ventilation to suit all weathers. In the use of portable sashes for hot-beds or frames, the best way to ventilate is to raise the sash at the back by pieces of wood so notched that from one inch to five or six inches can be given, as required.

Ventricose.—Swelling unequally on one side.

Vernation.—The arrangement of leaves in a bud.

Verucosus, Verucose.—Warty.

Versatile.—Affixed by the middle; swinging freely, as the oscillating anthers of grasses.

Verticillate.—Arranged in whorls.

Vesicle.—A little cell or bladder, one of the ultimate atoms of which the bulk of vegetable tissue is built up.

Villous.—Shaggy, with loose, long, soft hair.

Virens.—Green.

Virgatus.—Twiggy.

Viridis.—Green.

Viscous.—Clammy.

Vitreous.—Transparent.

Volubilis.—Twisting.

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Walks.—It was Downing, we believe, who laid down the common-sense rule, that in the laying out of walks or drives in the garden or pleasure-ground, there "never should be any deviation from a straight line unless from some real or apparent cause." So, if curved lines are desired, trees, rock, buildings, or mounds must be placed at the bend or curve, as a reason for going round such obstacles. If any one doubts the necessity for this rule, let him observe the effect produced on level ground, where a line runs in corkscrew fashion, as is sometimes seen in the space between the house and the street. The absurdity is apparent, for no matter what leisure one may have, to be compelled to go a roundabout way to reach a point where there is no apparent reason or necessity for it, is certain to grate on the senses; yet, ridiculous as this is, such cases are by no means rare, as there is a prevailing notion that such walks or drives must be curved lines, (the curve being the line of beauty,) whether the necessities, naturally or artificially formed for such lines, are present or not. Often the formation of new grounds is totally ruined in this way. The proprietor, entirely ignorant of what is wanted, places himself in the hands of some ignorant gardener, who pretends to a knowledge of what strictly belongs to the trained landscape engineer. As well might he expect the average brick-layer, working for two or three dollars per day, to plan and supervise the erection of his dwelling house as the average gardener, to whom he pays $50 or $60 a month,

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to lay out his carriage drives and lawn; for the one is oftentimes equally as much a matter of taste and skill as the other. In suburban residences, where the house is not more than a hundred feet or so from the street, a drive is best made by having an entrance at each side of the lot, so that the carriage can enter at one gate and go out at the other, presuming that the width of the ground is 500 feet, and the distance from the street to the front door is 150 feet. Then the foot-walk should be in a straight line direct from the street to the front door. The width of the roads or walks must be governed by the extent of the grounds. For the carriage-way the width should not be less than ten feet, and for foot-walks five feet. Often gardens of considerable pretensions have the walks not more than three feet wide, where it is utterly impossible for two persons to walk abreast without getting their dresses torn or faces scratched by overhanging branches. Of course, it is another matter when the garden plot is limited to the width of a city lot, (25 or 50 feet;) then such economy of space is perfectly excusable. The character of the soil must in a great measure determine the manner of making the walk or road. Every one must have noticed that, after a heavy rain, unpaved streets in some districts remain next to impassable for many hours, while in others, after the same amount of rainfall, they are comparatively dry. This is entirely due to the nature of the subsoil, which, if gravelly or sandy, will quickly allow the water to pass off; if, however, the subsoil is of

clay, then provision must be made for ample drainage, else, no matter of what material the walk or road is composed, unless the water passes through it or off it rapidly, it will never be satisfactory. As the formation of walks and roadways cannot well be explained without illustrations, we beg to refer the reader to our work, Practical Floriculture, page 20.

Wardian Case.—This is a neat contrivance, used for such plants as require a moist, still atmosphere, such as *Ferns, Mosses,* the so-called "*insect eating*" *plants,* such as *Nepenthes, Sarracenias, Dionœas,* etc., or tropical plants grown for the beauty of their leaves, as *Dracœnas, Crotons, Marantas, Caladiums,* etc. The Wardian Case has a base or tray made of Black Walnut, Oak, or other ornamental wood about six inches deep, and lined with zinc, and glass sides and hinged top; or the tray is made of terra cotta or other earthenware. They are made of various sizes, the average, however, being about twenty-four inches long, and sixteen inches in width and height. They should be elevated on a stand to a height that will allow its contents to be best seen, as the plants used for that purpose should be such as will bear the closest inspection for richness of shading or curious construction of leaves. When the Wardian Case is first filled with plants, it should be given water sufficient to reach to the bottom of the soil, but not enough to make the soil too wet. The top of the case is hinged, so that it can be lifted to allow the escape of moisture, which, when in excess when the case is closed, will be known by its trickling down the sides of the glass. Usually it will be sufficient to raise the lid an inch or so every day or two to keep the glass free from this

moisture; and no ventilation is necessary except to get rid of this excess, as the closer it is kept the better it is for the welfare of the peculiar class of plants suited for it. The effectiveness of the Wardian Case depends a great deal on the arrangement of the plants, the tallest and most conspicuous being in the center, with the smallest towards the edges, varying the interest on all sides of it by contrasting the different colorings and forms of the leaves. The Wardian Case should be placed in a position where it does not get the direct sunlight. The plants with which it is usually filled are natives of shady woods or marshes, where they are sheltered from winds and in partial shade, and the nearer their natural condition can be imitated in the Wardian Case the better. Ferneries, so called, require substantially the same character of plants and the same treatment, the only real difference being that they are round, and the glass covering is what is known as a bell glass, which see.

Wart.—A firm glandular excrescence or hardened protuberance on the surface.

Watering.—This is one of the most important operations in the indoor culture of plants, and one that it is almost impossible to get a proper knowledge of without actual experience, as the circumstances are so various when water should be given or withheld, that, were we to write a volume on the subject, it would not be of as much value as a year's actual practice. There are, however, some general rules that it will help the beginner to keep in mind. One important rule is, never to water a plant until it is dry. What this condition of dryness is, is governed not altogether by the indications of the soil being dry on the surface, but also by

the vigor of the plant. A luxuriant plant, growing in a temperature of 70° or 80°, with indications of dryness on the surface of the pot, should receive sufficient water to saturate the soil to the bottom; while a plant that has been cut down for cuttings, or by any other reason defoliated, and thus lessened in vigor, should not be watered until almost at the point of wilting. Again, experience tells us that soft-wooded plants, such as Geraniums, Fuchsias, or Heliotropes, will recuperate even when dried to wilting if thoroughly soaked, while hard-wooded plants, such as Azaleas, Heaths, or Camellias, under the same circumstances would fail to recover. All succulent plants, such as Cacti, Sedums, Echeverias, etc., will admit of being kept nearly entirely dry during the dormant season; and although they will exist with but little water even for twelve months, yet, when their proper season of growth begins, (which will be indicated by the developing of the buds or shoots,) they require water nearly as regularly as the ordinary class of soft-wooded plants.

The degree of atmospheric *moisture* kept in the green-house greatly determines the amount of water required at the roots, and a proper degree of atmospheric moisture is indispensable for the welfare of the plants. When firing in winter sufficient to raise the temperature to 50 degrees, or in dry weather at other seasons, this moisture can either be had by evaporating pans on the pipes, or by Moss packed between the pipes, and kept moistened, or by *syringing*, judgment being used, of course, by the state of the atmosphere; for in wet or muggy weather the artificial means of producing moisture should be stopped. It is claimed by

some that plants should be watered or syringed by water at the same temperature as the house. When this can be done without inconvenience, it may be as well to do so; but we have proved by over twenty-five years' extensive experience, that it is not a necessity, for we rarely use water at a higher temperature than 45 degrees either in watering or syringing, and have never known an instance where injury was done. *The ordinary* watering of plants from sowings or plantings in the open ground in dry weather we believe to be of little avail, if it is not sometimes a positive injury, unless the circumstances are such that the plants can be completely *flooded* or *irrigated*.

Weeds.—All plants are so called that come up spontaneously in the ground where crops are sown or planted, no matter what they are; for, if not wanted there, no matter how ornamental they may be, they are out of place, and should be cut down as weeds. Annual weeds are the most troublesome on cultivated grounds, but, if taken in time, are easily kept down by use of the steel rake, which, if used before the weeds appear above the surface, makes this part of cultivation a simple matter. (See *Rake.*) It is of the utmost importance for the welfare of crops that weeds should never get a headway; for not only is the labor of destroying them doubled or quadrupled, but they are generally the grossest kind of feeding plants, which thus deprive the crop of its legitimate food. The evil of neglect to destroy weeds is not confined to one season; for when allowed to go to seed, the penalty is paid year after year, often for four or five years after, the seeds coming up as plowing or digging

WHO

brings them to the surface for germination. We can call to mind instances where market gardens, cultivated in close seed crops, were rendered almost useless in the hands of slovenly owners. When ground gets into this condition, the only remedy is to grow crops such as Cabbage, Potatoes, or Corn, which have vigor enough to crowd down an excessive crop of weeds. If land is filled with the seeds of weeds, such crops as Onions, Carrots, Parsnips, Strawberries, or Spinach, will rarely pay for the labor of cleaning.

Whorl.—Similar organs arranged in a circle round an axis, as the leaves of some Lilies.

Window Gardening.—This is yearly becoming more popular with us, and in all our best appointed hotels window boxes or stands of plants are seen, often arranged with exquisite taste. The plants selected are usually such as are attractive for their beauty of foliage rather than flower, as it is found that few plants can be found whose flowers will long remain perfect in the dry atmosphere and gas of such rooms as our dining halls in hotels. The plants best fitted for such purposes are found to be Palms, Crotons, and Dracænas. The Screw Pine, Climbing Fern, etc., for winter, and Caladiums, Coleuses, fancy-leaved Begonias, etc., for summer. When flowering plants are used for temporary decorations, Primulas, Azaleas, Camellias, Mignonette, Sweet Alyssum, Heliotrope, Carnations, Roses, or other flowering plants having fragrance are selected. The boxes used in window gardening are made of a great variety of materials, such as wood, terra cotta, iron, rustic wicker work, etc. But as the box is only a medium to hold the plants, the latter should be the object of attraction, and not the box, so that any ordinary box

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made of pine will answer a temporary purpose just as well as an expensive one, as the sides soon become covered up with the drooping or creeping plants.

The window box should be made of a length to suit the size of the window sill, and from eight to twelve inches wide, with a depth of from four to six inches. On a visit to London a few years ago we found that the rivalry of the occupants of houses in window gardening even exceeded that in their door yards, the windows of the houses on each side of the street to four and five stories in height, for miles in length, presenting a scene of bright colors perfectly dazzling, markedly among which were the blue of the Lobelia, the yellow of the golden Moneywort, and the scarlet of the Tropæolum, forming drooping curtains of these brilliant colors, often to a length sufficient to reach the window below. The plants used in arranging the window box are so much a matter of taste that we will not here make suggestions, other than to say that the best effect is had by planting the inner row of plants of a bushy nature, say Geraniums or Mignonette, while for the outer row to droop, Lobelias, Nasturtiums, Golden Moneywort, Petunias, etc.

Wings.—The lateral petals of a Pea flower; the flat, membraneous appendages of some seeds, as those of many Conifers and the Maples.

Working Roots.—This term, we believe, was first used by the author in Practical Floriculture, to distinguish the young white roots emitted from the dry or old roots, and is well applicable from the fact that it is only when these young white roots are emitted that a plant begins to grow, the buds or shoots starting

simultaneously with these young roots. For example, when we take a dormant Rose that has been grown in a pot, no matter how well it may be supplied with old roots, there is no healthy development of leaves and flowers until the emission of young roots. When we plant out such plants as Celery, Cabbage, or Strawberries, in the garden, the young or "working roots" emitted from the main roots are certain indications that the plant has started, and that their

growth and future development is fairly assured against drought or other causes; but if the "working roots" are not emitted, then there is yet danger of the plants failing.

Wort.—A term applied to plants generally, and sometimes especially to those of herbaceous habit, or herbs. It is now chiefly used in compounds, as Liver-*wort*, Money-*wort*, Lung-*wort*, Mug-*wort*, etc. The term is also used to designate a sweet infusion of malt or grain.

INDEX.

[To give additional value to the Handbook it was deemed advisable to add to the Glossary a number of brief articles relating to the best methods of culture, the most useful implements now in use, insects and their destruction, modes of propagation, and other useful subjects, which, placed as they are, seemed to require an *Index* for more convenient reference; and in addition mention is also made in the Index of some of the more popular and important plants in the body of the work, and which are now extensively grown by the florist, the fruit grower, and the market gardener.]

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By PETER HENDERSON.

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To such as are intending to begin the business of Market Gardening, we offer for their instruction our work "Gardening for Profit," published first in 1866, and new edition in 1873. "Gardening for Profit" has had a larger sale, probably, than any work ever published on the subject of Horticulture. Upwards of fifty thousand copies have been sold, and we have hundreds of grateful testimonials from those who have been benefited by its teachings. The subjects of its contents are:

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